

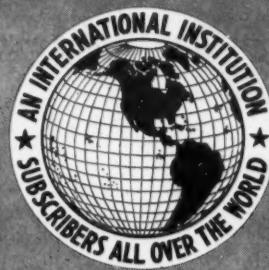
It's Important to  
Know In Time  
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The Newspaper  
of the Industry

# Air Conditioning Production Tools for Victory & REFRIGERATION

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Technical  
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## Inside Dope

By George F. Taubeneck

What a Job!  
Taps  
Low Costs  
What 'Small Business'  
Wants Postwar  
West Coast Wants to Stay Big  
Gas Appliance Prospects  
OPA Again  
Who Pays the Taxes

### What a Job!

Some conception of the enormous preparations made for the Invasion can be found in the figures that in 1943 the Army Service Forces shipped more than 28,500,000 tons of material overseas. This compares with 8,800,000 tons moved across during the last war.

### Taps

Friends of Ed Barger, formerly of Nash-Kelvinator and now president of the Lul Products Corp., were saddened by news of the death of his son, Naval Air Cadet Robert Edward Barger, in a training plane crash in Illinois last week.

Funeral services for Cadet Barger, who was just 21 years of age, were held in Arlington National Cemetery.

### Low Costs

First year after both wars end will be the most favorable for new construction, from the standpoint of costs, the Management Research Institute reports. They predict rising costs for more than a decade in the construction field after that first transition year ends.

Those who plan plant expansion—yes, there are some—might well take that advice into consideration.

### What 'Small Business' Wants Postwar

At the National Small Business Men's Association in Chicago recently a number of pregnant ideas came forward. For example, it was suggested that Congress should set the maximum tax on the first \$25,000 of corporation income at 10%, to help small business expand and create employment.

Strong protests against the double taxation on corporate dividends were also registered. (Incidentally, the idea of tax exemption for dividends paid is gaining strength fast—even some labor union economists favor it. It follows the British pattern of capturing the tax money from the individual who receives the dividend, rather than from the corporation which pays it.)

They also favored an open shop, revision of the Wagner Act to give an "equal break to employees, employers, and the public," and incentive pay. In return for legislation of the nature indicated above, the group declared that "small business" would pledge the employment of four million returning service men.

Just how you define "small business" nobody seems to know. It has been our impression that practically anybody in this industry who isn't connected with General Motors, General Electric, or Westinghouse considers himself in "small business," which sometimes strikes some of us who are really small as being pretty funny.

This being the case, we trust, however, that the bulk of our readers are interested in any proposals which would give "small business" a chance to grow in the good old American way. Present "climate" in Congress gives rise to the belief that many things will be done to give the "little" business man a break in the near future.

(Concluded on Page 23, Column 1)

## Norge Will Add 4 Products To Present Lines

Home Freezer, Room  
Cooler & Automatic  
Washer Included

CHICAGO—The Norge division of Borg-Warner Corp. plans a wide expansion of its household utilities line when conditions permit through the addition of four new products—home and farm freezers, automatic cycle washers, home and office unit room coolers, and an automatic clothes dryer, it was announced here at the Midsummer Marts by M. G. O'Hara, vice president in charge of sales.

Previous to the war, Norge produced household and commercial refrigerators, gas and electric ranges, standard-type washing machines, and home heaters.

O'Hara disclosed that surveys by the "Norge Jury of Marketing Opinion," a fact-finding body composed of Norge distributors and dealers, showed "an enormous market potential for each of these products.

"In the field of home and farm freezers alone," he stated, "it is estimated that 2,200,000 units may be sold within 12 months after production is permitted.

"The automatic cycle laundry is well past the experimental stage and Norge dealers from coast to coast have expressed confidence in their ability to sell such units in large volume. Norge is placing special emphasis on the home laundry market of the future and it seems an automatic dryer is a natural addition to the completely automatic laundry.

"Room coolers of the plug-in package type will increase greatly in popularity after the war and we anticipate a widely expanded market for the product," he added.

### G. H. Smith Resigns as Hotpoint Sales Chief

CHICAGO—G. H. "Rock" Smith, general sales manager for Edison General Electric Appliance Co., manufacturer of Hotpoint appliances, has resigned.

Mr. Smith has as yet made no announcement about his future plans. No successor as general sales manager has been appointed by Hotpoint.

### Conlon Corp. Planning Full Appliance Line

CHICAGO—With the appointment of I. N. Merritt as vice president and general manager, Conlon Corp. last week announced that it would make a "full line" of electrical appliances after the war. Previously the company had manufactured washers and ironers only.

Mr. Merritt resigned as vice president and director of Electric Household Utilities Corp., Chicago, and head of the firm's subsidiary, Meadows Corp., Bloomington, Ill., to take the position with Conlon.

### Nema Will Sponsor Electronics Show

NEW YORK CITY—An International Electronics Exposition—designed to show American industry what electronics will do—has been scheduled for the latter part of 1945 if general conditions permit, according to an announcement by the Electronics Section of the National Electrical Manufacturers Association.

(Concluded on Page 4, Column 5)

## Okay 'Freon' Use In Comfort Cooling For Special Cases

WASHINGTON, D. C.—Exceptions to the ban on the use of "Freon-12" for comfort air conditioning applications have been made in cases of "windowless" buildings and such places as have no other means of adequate ventilation, and in the cases of residences where air conditioning is essential to protect the life or restore the health of a person suffering from a serious ailment or disease, according to the terms of an amendment to Order M-28 effective July 5.

Special application must be made to WPB in Washington for permission to get "Freon-12" refrigerant for such applications.

Following is the text of the amended part of the order which permits the use of the refrigerant in such cases:

"It will be the general policy of the War Production Board not to authorize delivery and use of 'Freon-12' gas for any List A system except in the following cases:

"(i) When the major portion of the space to be air conditioned is used as a radio broadcasting studio, auditorium, hotel, restaurant, cafeteria, school, office or office building, or department store, and one of the following conditions exists:

"The building is 'windowless' or one in which the windows cannot be opened for ventilation (such as glass brick, or glass set in a fixed frame which was built into the surrounding wall in an immovable way); or the rooms needing air conditioning are interior ones having no other means of adequate ventilation and are either served by a separate system or constitute a major portion of the space regularly occupied by persons and are served by one central system; or

"(ii) When the system is used to air condition a room or rooms in a single family residence or a single apartment and its continued operation is essential to protect the life or restore the health of a person suffering from a serious ailment or disease and under care of a licensed physician, and a statement to that effect by such physician is also furnished with the application referred to below.

"Application for WPB permission to get 'Freon-12' gas for such a use should be made by the owner or operator of the system by letter in duplicate (or in an emergency, by wire confirmed immediately by letter) to War Production Board, General Industrial Equipment Division, Washington 25, D. C., Ref. M-28 giving the address and a description of the building(s) in which the system is located and stating the extent to which the system comes within either of the cases described above, the quantity of 'Freon-12' gas needed, and the name and address of the probable supplier. The authorization, if granted, will be sent to the applicant, who should show it to his supplier when requesting delivery."

**Siegfried Joins Staff  
Of Superior Valve**

PITTSBURGH—W. A. "Wid" Siegfried, who since his graduation from Washington & Jefferson College in 1934, has been associated with the refrigeration valve and fittings industry, has joined Superior Valve & Fittings Co. as assistant to vice president, according to K. M. Newcum, vice president in charge of sales.

The majority of Mr. Siegfried's 10 years in the industry was spent in the eastern district, with headquarters in New York, although he lived in Atlanta, Ga., during 1937 and traveled the southeastern states.

In his new capacity, Mr. Siegfried will be stationed at the Superior Valve & Fittings Co. headquarters in Pittsburgh.

## Nelson Forces Okay on Plan For Reconversion; Start Is Delayed

### Rail Passengers Make Cooling No. 1 'Want'

BUFFALO, N. Y.—Men regard air conditioning as the most important factor in train-travel comfort, the New York Central Railroad reports after a survey of more than 5,000 coach passengers who answered the railroad's questionnaire for ideas in the design of postwar coaches.

Passengers agreed generally on conditioned air at about 74° F. for maximum comfort, except in very hot weather.

### Westinghouse To Produce Freezers For Home & Farm

MANSFIELD, Ohio—Complete line of home freezer cabinets for both city and farm use will be produced after the war by Westinghouse Electric & Mfg. Co., it was announced by J. H. Ashbaugh, vice president in charge of the electrical appliance division.

Just how many models and sizes will be manufactured was not announced, because, explained Mr. Ashbaugh, extensive field testing of experimental models is still underway and the extent of the line has not been determined. He indicated, however, that consumer interest seems to be centered at present on five different sizes of home freezers ranging from 4 to 40 cu. ft. capacities.

"The postwar market for home freezers and frozen foods will be given great impetus this year as the government releases more frozen foods for home consumption in lieu of canned foods which it plans to use for the armed forces and Lend-Lease," declared Mr. Ashbaugh.

A recent survey of 1,500,000 locker renters showed that 400,000 (about one out of three) hope to own a home freezer after the war, he added.

"Home freezer cabinets can revolutionize a housewife's shopping and housekeeping habits," Mr. Ashbaugh

(Concluded on Page 4, Column 4)

### WPB Won't Issue Orders For Civilian Production Until Mid-August

WASHINGTON, D. C.—After weeks of wrangling among high government officials, including his own assistants, Donald M. Nelson's four-part reconversion plan has been finally approved, with first orders putting it into effect scheduled to be issued Saturday, July 15.

Ultimate effect of this program on the refrigeration industry lies in the possibility that some time after mid-August, orders may be issued by WPB permitting limited resumption of refrigeration production in those plants having a labor supply and machinery not being used for war work—and granting that component parts, such as motors, are available.

Opposed by the War and Navy departments, the War Manpower Commission, and reportedly nine of the 12 WPB vice chairmen headed by Charles E. Wilson, executive vice chairman, Nelson had the backing of President Roosevelt, Senator Harry Truman, and others.

Original orders were signed by Nelson on June 19, but he was stricken with pneumonia a few days later. WPB officials refused to issue the necessary directives to put the plan into effect until the final decision was forced.

The four-part plan of Nelson for reconverting industry to civilian production will be staggered—a concession won by opponents of the program—from July 15 to mid-August, at which time the final order permitting WPB field offices to authorize production of civilian goods in plants with available labor and machinery is to be issued.

On Saturday, July 15, restrictions on the use of aluminum and magnesium were to be dropped. Total output of civilian goods will not be increased by this order, but it is expected that special programs will be instituted following removal of the arbitrary ban on use of these

(Concluded on Page 4, Column 4)

### Permit Production Of Water Heaters

WASHINGTON, D. C.—Limited production of electric water heaters for civilian use has been approved by the War Production Board at an annual rate not to exceed 37% of total production by the industry during the base period (July 1, 1940, through June 30, 1941).

Production of electric water heaters for civilian use was heretofore prohibited, except when found necessary to allow some production for civilians on an appeals basis. Establishment of a regular quota for production will eliminate the necessity of appeals.

New quotas also have been established for production of non-electric water heaters. Restrictions on manufacture or fabrication of metal jackets for water heaters have been eliminated, WPB said.

The foregoing actions were taken to implement the water heater program that was established to meet necessary civilian requirements for such equipment, it was explained. Production of water heaters for the Army, Navy, Maritime Commission, and War Shipping Administration will be in addition to established quotas, WPB said.

Metal jackets are again permitted for water heaters because paperboard jackets had proven unsatisfactory. The industry used these jackets as

(Concluded on Page 4, Column 2)



**The EBCO Manufacturing Co.**

401 W. TOWN ST., COLUMBUS 8, OHIO

True to its name, the *Oasis* Electric Water Cooler means dependable, healthful, satisfying relief from thirst. Its constant supply of sanitary, refreshing, correctly cooled water is delivered through the patented bubbler in the most convenient splash-free flow attainable. And its low-cost performance is underwritten by EBCO's 20 years of pioneering leadership in the electric water cooler field. Every *OASIS* cooler is built in EBCO's modern plant featuring the most advanced equipment and up-to-the-minute production-line methods. Write for details.

**OASIS**

## Over 50% of Prospective Home Buyers 'Won't Buy' Without Air Conditioning

### But Home Builders Assn. Also Finds Public Expects It At Low Cost

NEW YORK CITY—Year-around air conditioning ranks high in the demands of prospective postwar home buyers and builders, but would-be owners of "dream" houses expect to pay no more for "miracle" housing than they did for conventional prewar homes, complains the National Association of Home Builders, which recently completed a survey of prospective home buyers.

The builders association is by no means opposed to the installation of year-around air conditioning and other modern "miracles" in the postwar home. It is, however, fearful that the public's "dream house or else . . ." threat will seriously curtail postwar building when the public realizes that "revolutionary" changes do cost money.

#### AVERAGE INCOME \$3,000

Surveys recently conducted among the broad middle class with an average annual income of \$3,027 showed that more than half of those interviewed expected to buy a six-room house with two baths, replete with mechanical wonders, and yet pay an average of only \$52 a month in financing the mortgage, stated the builders.

The survey was conducted in At-

lanta; Chicago; Columbus, Ohio; Hartford, Conn.; Houston; Minneapolis; Pittsburgh; Rochester, N. Y., and San Francisco. Of the families interviewed, 32% owned their homes and 68% didn't, but 45% of the total indicated they expected to build or buy a home. The majority, 68%, expected to buy or build within one or two years after the war.

#### WHAT THEY WANT

Most revealing part of the survey, according to the builders, is contained in the answers received to this question: "Would you build or buy a new home if you could not get any or all of the six typical 'revolutionary' changes in home construction?"

Here's what the consumers interviewed said:

54% said they would not build or buy if they could not get complete, year-around air conditioning.

62% said "No" if they could not get electronic controls which would make housekeeping far more simple than today.

53% said "No" if they could not get extensive use of plastics for plumbing, pipes, bathroom fixtures, wall surfaces, etc.

27% said "No" if they could not get movable partitions.

37% said "No" if they could not get outside walls which could be opened up on a garden or terrace.

28% said "No" if they could not get rooms built as separate units which could be added or removed.

A further breakdown of the replies disclosed that families willing to pay more than \$60 in monthly installments for their home expected the most for their money; those in the \$40 to \$60 bracket expected only slightly less; but even among families willing to pay less than \$40 a month, from one-fifth to two-fifths said they wouldn't buy unless they could get the six "revolutionary" changes.

#### BUYERS EXPECT IT TO BE AVAILABLE

To the question "At the price you intend to pay, do you believe that any of the following 'revolutionary' changes will be available?" the following replies were received:

72% expect complete year-around air conditioning within 10 months after the war.

81% expect electronic controls to simplify housekeeping in 11 months after the war.

81% expect extensive use of plastics eight months after the war.

60% expect movable partitions to permit making one room out of two, or vice-versa, within six months.

54% expect outside walls which could be opened to garden or terrace within eight months after the war.

56% expect rooms built as complete independent units in eight months.

Admittedly alarmed by the implication that the public won't buy or build if it can't have the "miracles," the building association is launching

a nation-wide campaign to destroy the illusion of the "miracle house" and substitute the picture of what it calls the "attractive, practical home of tomorrow."

#### WHAT THE BUILDERS SAY

Just what will the "home of tomorrow" be? Here's what Frank W. Cortright, executive vice president of the builders association, says:

"There will be gradual, progressive evolution in home building, but not drastic revolution. Greater emphasis will be placed on selection of site and designing the house to blend with the general surroundings to provide a maximum of spacious living."

"Conventional types of homes will continue to dominate the American scene, with reasonable modifications, such as wider acceptance of the low, sweeping roof lines of the California and Florida styles."

#### NOT MUCH COMMENT ON AIR CONDITIONING

"In construction and equipment, the builders will be able to deliver the best types of prewar housing with considerable more window area, increased emphasis on size and charm of the living room at the expense of the dining room. Especially attractive kitchens and bathrooms and appealing basements will be outstanding features of the postwar homes."

"Practical, labor-saving devices to reduce the burden of housekeeping will be built into these homes, depending upon the wishes of the consumer and his ability to pay for extra interior refinements."

### Crosley Corp. Appoints 3 New Distributors For Dakota Areas

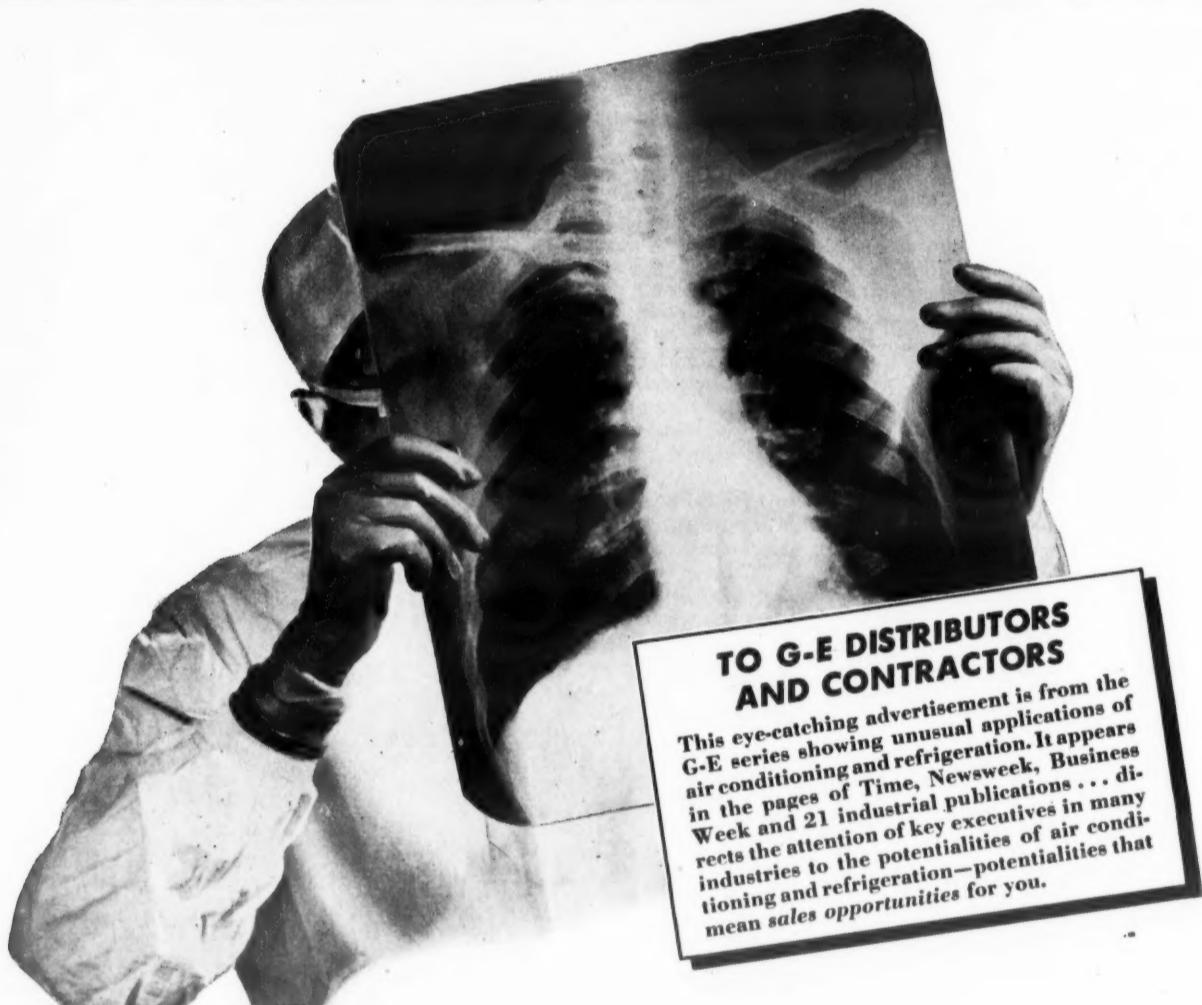
CINCINNATI — Appointment of three new distributors of The Crosley Corp. in the Dakotas has just been announced by B. T. Roe, manager of distribution, The Crosley Corp.

The new distributors are Western Auto Parts Co., Minot, N. D., with branches in Fargo, Williston, Devils Lake, Mandan, and Jamestown; the Cave Supply Co. of Watertown, S. D.; and the Aberdeen Supply Co. of Aberdeen, S. D.

James M. Zuzulin has been president of the Western Auto Parts Co. since it was organized in 1932 as a specialty sales organization. The company's six retail stores are located in various North Dakota cities, and are supplied with adequate facilities for providing parts and service to customers and dealers.

Ernest Cave heads the Cave Supply Co., which has been in business in Watertown for the past 10 years. This firm formerly handled Crosley products under the name of Watertown Electric Supply Co.

The Aberdeen Supply Co. is headed by Charles Anderson as manager. For the past 20 years, he has been at the head of this firm which formerly handled Crosley products when it was known as the Hatfield Motor Supply Co.



## PORTRAIT OF A HERO ... handle with care!

Many a wounded hero will come home well and strong again, thanks to a thin sheet of film...

Thanks to the miracle of the X-Ray . . .

And thanks to air conditioning and refrigeration which help make the miracle possible! Air conditioning supplies clean, filtered air—with accurate regulation of both temperature and humidity—in plants where X-Ray film is made, in army hospitals where it is used. Refrigeration cools the solutions used in processing the film.

Out of such wartime applications, General Electric is evolving new techniques, finer equip-

ment for conditioning temperature and humidity. When equipment again is available for peacetime commercial and industrial uses, it will be vastly improved—more compact, more efficient, more flexible than ever before!

Now . . . we'll be glad to put your name down for earliest available data on postwar air conditioning and refrigeration equipment. Write: General Electric Co., Air Conditioning and Commercial Refrigeration Divisions, Section 426, Bloomfield, N. J.

★ BUY WAR BONDS ★

*Air Conditioning by*  
**GENERAL ELECTRIC**

Hear the General Electric Radio Programs: The "G-E ALL-GIRL ORCHESTRA," Sundays 10 P. M., EWT, NBC... "THE WORLD TODAY" News, Every Weekday, 6:45 P. M., EWT, CBS

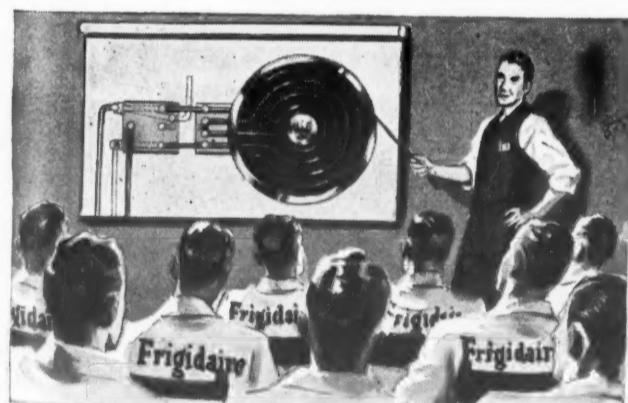
**Headquarters for PARTS AND SUPPLIES**  
**FOR ALL TYPES OF REFRIGERATION**

SEND FOR OUR CATALOG ON YOUR LETTERHEAD  
**THE HARRY ALTER CO.**  
1728 S. Michigan Ave. Two Big Warehouses to Serve You  
Chicago, 16, Ill. 134 Lafayette St. New York, 13, N.Y.

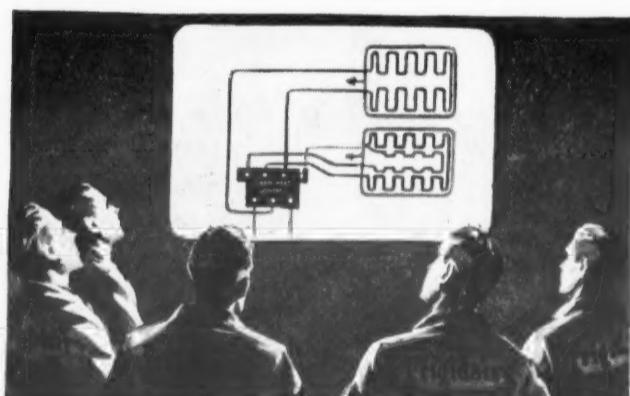
# Range Service Training Helps Frigidaire Dealers Build for the Future



This 88-page POCKET-SIZE Guide\*—profusely illustrated—provides the range serviceman with complete reference data to take on the job with him.



Service Schools, conducted by factory and district personnel, give complete training on the servicing of Frigidaire Ranges.



New Slide Film teaches "mechanics" of range servicing and the "important trifles" of range operation from the housewife's viewpoint.



Factory and District Range Service Specialists provide valuable field help and guidance for Frigidaire service personnel.

This complete Training Program is enabling Frigidaire Dealers to provide effective Range Service in the face of acute manpower shortages and other wartime problems. The resulting backlog of good will being built up among users of Frigidaire Electric Ranges will be reflected in new and greater sales opportunities for Frigidaire Dealers in the great peacetime future that lies ahead.

\*This New Reference Guide is extremely popular among Frigidaire Range Servicemen. Although small enough to be carried in the pocket—it is so complete, with many of the diagrams and illustrations produced in full color—that even experienced range servicemen find it a valuable help when called upon to service Frigidaire Ranges.



For Excellence  
ARMY E NAVY  
in War Production

**FRIGIDAIRE**  
Division of  
**GENERAL MOTORS**  
DAYTON 1, OHIO • LEASIDE, ONTARIO  
Peacetime builders of  
ELECTRIC REFRIGERATORS • RANGES • WATER HEATERS  
HOME FREEZERS • ICE CREAM CABINETS  
COMMERCIAL REFRIGERATION • AIR CONDITIONERS  
BEVERAGE, MILK, AND WATER COOLERS

## WPB Will Put Into Effect Policy of Civilian Goods Production Where Feasible

(Concluded from Page 1, Column 5)

metals in non-war products.

Next Saturday, July 22, WPB is scheduled to issue an order permitting manufacturers to build experimental models of postwar civilian products, and will support this experimental construction with priority assistance.

On July 29 WPB is scheduled to issue an order giving manufacturers permission to place orders for tools and equipment which will be needed for reconversion to peacetime products. These orders, however, will carry low priority ratings, if any, it was announced.

### CERTAIN GOODS PREFERRED

When the final, all-important order providing for actual authorization of production goes into effect in the middle of August, manufacturers will be required to give preference to 124 groups of civilian goods, including such items as bicycles, clothes hangers, egg beaters, bobby pins, and can openers.

Opposition to Nelson's program has taken two lines. The Joint Chiefs of Staff have been against the reconversion program because they felt it would hinder the war program, despite the announced intention of putting the plan into effect only where it would not interfere with war production.

"We are disturbed over the existing lag in war production, which, if

it continues, may necessitate revision in strategic plans which prolong the war," said the Joint Chiefs of Staff in a letter to Nelson. "In view of the major offensive operation under way on every front it is essential that there be no relaxation in war production and that deficits in deliveries be made up at the earliest possible date."

According to Senator Truman, opposition of the Army and Navy was based on the idea that surplus labor in one area should be forced, by lack of employment, to move to critical labor areas.

The other line of opposition, reportedly that within the WPB itself, disputes Nelson's contention that for the "public interest" new plants not now engaged to full capacity on war work should be allowed to produce civilian goods ahead of former peacetime producers of the same goods who are still 100% on war work.

### WPB SHAKES UP PREDICTED

It was said that several vice chairmen in the WPB, including Charles E. Wilson, will resign within a month over this controversy, while it is reported that Nelson wants to reorganize his staff in view of its failure to support him.

The row was brought to a head last week when Vice Chairman Wilson and Sidney Weinberg, another vice chairman who recently rejoined WPB, reportedly asked the convalescing Nelson to rescind his order of June 19. Nelson's refusal prompt-

## Joins Crosley Corp



LEE STRATTON

A former Kelvinator executive, he was recently named manager of refrigeration manufacturing for Crosley Corp.

ed Senator Truman to issue a statement in support of Nelson, calling attention to seriousness of cutbacks in military production if industry is not prepared to take up slack promptly through manufacture of civilian goods.

Then the Joint Chiefs of Staff made public their letter to Nelson opposing the plan. Finally the problem was turned over to James F. Byrnes, Director of the Office of War Mobilization, as arbiter, who worked out the compromise of staggered dates for instituting the program.

## Westinghouse Plans Promoted by Philco Big Freezer Drive

(Concluded from Page 1, Column 4)

continued. "She can market when she chooses—once a month, or once every two weeks, or she can process foods from her own garden at the peak of their flavor and nutritive value, thereby reducing marketing to a minimum. She can cook food at any time, then freeze it for future use and she can save all leftovers by freezing them in minimum space while they're still fresh.

"We are currently conducting exhaustive kitchen tests of freezing both cooked and uncooked foods. This former field, cooked frozen foods, offers a wide range of possibilities. Many new, strange, exotic foods from other parts of the world will find their way to our tables."

The Westinghouse Home Economics Institute, under the direction of Mrs. Julia Kiene, has been conducting food freezing, packaging, and storing tests for the past three years, and the company's Household Refrigeration Department has assigned a man exclusively to contact work with food packers, marketers, and processors.

First announcement to consumers of the proposed Westinghouse home freezer line will be made in August through full-page advertisements in the *Saturday Evening Post* and *Collier's* supported by tie-in announcements on the Westinghouse "Top of the Evening" Blue network radio program, according to T. J. Newcomb, sales manager of the Westinghouse Electric Appliance Division.

In addition, John Nesbitt will devote his science story to the subject of frozen foods on the Westinghouse Sunday afternoon program carried by the National Broadcasting Co.

Intensive trade merchandising support is also planned, said Roger H. Bolin, advertising manager. In advance of the consumer advertising Westinghouse retailers will receive full-color easel-type counter cut-outs showing a Westinghouse home freezer being unloaded from a truck, and a 22 x 28-in. poster blow-up of the full-color August advertisement.



WALTER H. EICHELBERGER  
Has been appointed sales manager of Philco Corp.'s refrigeration division. Previously, he was in charge of the company's Atlantic division.

## Nema Electronics Show Scheduled For 1945

(Concluded from Page 1, Column 2)

This group and all other Nema Sections having a direct interest in electronic devices will sponsor the exposition.

While the time and place for the show will be announced later, it is pointed out that exhibitors will not be restricted to manufacturers who are members of Nema. The exposition will be open to all manufacturers of electronic equipment and components.

In accordance with the present plans of the sponsors, exhibits will be restricted as much as possible to working exhibits or demonstrations which utilize electronic principles. Provision will be made for technical sessions or clinics under the sponsorship of technical groups in the industry on the subject of electronic principles.

## Becker Quits WPB Job To Return To Bendix

MILWAUKEE—William A. Becker has resigned as field deputy of the War Production Board's Salvage Division to rejoin Bendix Home Appliances, Inc., of South Bend, Ind., and will make his headquarters here. Prior to the war Mr. Becker was district sales manager of the Bendix central division, and had been with Easy for more than 11 years.

## IN WAR OR PEACE

### ALL-PURPOSE ENGINEERING\*

means make it simpler and more efficient for a wider range of applications

For land, sea and air use, the modern machine gun is perhaps the most versatile and devastating weapon in the fight. It is a near-perfect example of All-Purpose Engineering\*.

Universal Cooler's new Post-war Refrigerating Units serve as another striking example of All-Purpose Engineering. These space and power saving units, with truly advanced basic features, will take a leading part in ushering in refrigeration's "new day."

Your post-war problems on fixture performance and design can be simplified right now by saying,

"Let's Ask Universal Cooler"

BUY WAR BONDS . . . AND KEEP THE BONDS YOU BUY



In the West it's  
REFRIGERATION SERVICE INC.  
Pacific Coast Supply Jobber  
since 1928

Your letterhead will bring our latest catalog—also our House Organ,  
"The Liquid Line"

RS  
3109 Beverly Blvd.  
LOS ANGELES 4, CALIF.

HIT...  
... OR MISS!

## THE ROCKET-BOMB

If you want a rocket-bomb kind of "shot" for that refrigerator unit . . . a sort of a blind stab that "might do the trick" . . . you DON'T want THAWZONE.

But, if you demand a scientifically planned "mechanism" that carries the "bomb" to the area and cruises around until it finds the "target" (moisture), you will contact the nearest THAWZONE jobber.

A TINY AMOUNT → A BIG JOB ← SMALL COST

THAWZONE  
The PIONEER FLUID DEHYDRANT

HIGHSIDE  
CHEMICALS CO.  
195 Verona Ave.  
NEWARK 4, N. J.



News today  
that means sales  
tomorrow

## WINTER FORECAST: GOOD EATING AHEAD!

All together now . . . let's can, brine, dry or freeze every extra speck of food from our Victory Gardens and farms. It will assure good eating next winter, in spite of any food shortages. Save the surplus . . . make Food Fight for Freedom.

Then pause and dream of the tomorrow when you can eat what you want regardless of harvest dates or seasons. When you'll take fruits and vegetables at the height of their sun-ripened goodness, pop them into your Westinghouse Home Freezer . . . and serve them when you will. When rare game and out-of-season foods can be the high spot of your dinner any time of year. When you'll serve today's leftover roast in a heart-warming dish, a month, even 2 months, from now . . . famous cooked dishes from restaurants in Quebec or New Orleans, Rio or Bombay . . . can be stored in your freezer ready for your whim to eat them.

Thrill over the time when you can bake the rolls and berry pie, cook the potatoes au gratin and chicken à la king, now . . . and serve them days, perhaps weeks later.

Pipe dreams? Not on your



Coming... a New Westinghouse Home Freezer for Postwar!

life! We at Westinghouse know now that they'll all come true. For when the war is over, we will again build a proud line of electric home appliances. And a new shining star for both city and farm will be the Home Freezer.

Meantime . . . let's all get busy and save the surplus! To help you we have a complete 48-page "Home Canning Guide". For your free copy, write the Westinghouse Home Economics Institute, Mansfield, Ohio.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO., MANSFIELD, O.  
PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

30 MILLION PRE-WAR  
**Westinghouse**  
ELECTRIC HOME APPLIANCES  
ARE YOUR POSTWAR PROMISE  
OF STILL FINER ONES TO COME

Tune in: John Charles Thomas • Sunday 2:30 E.W.T., N.B.C.  
"Top of the Evening", Mon. Wed. Fri. 10:15 E.W.T., Blue Network

When the war is over, Westinghouse will again build a proud line of electric home appliances. And a shining new star will be the Home Freezer for city and farm homes.

As additional groundwork for your postwar profits, we are breaking this big news to your customers now. Watch for

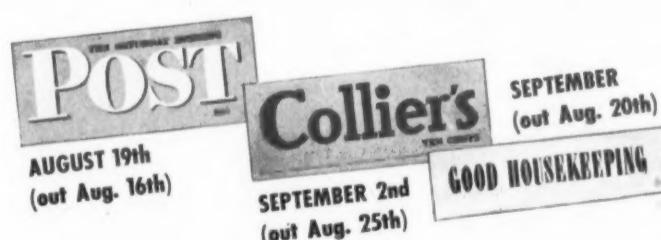
this full page, full color message in the Post (out Aug. 16th), in Collier's (out Aug. 25th) and in Good Housekeeping (out Aug. 20th).

And for complete details concerning the Westinghouse Full Line Appliance Franchise for postwar, see your near-by Westinghouse distributor now.

EVERY HOUSE NEEDS

**Westinghouse**  
PLANTS IN 25 CITIES... OFFICES EVERYWHERE

This advertisement appears in



SPECIAL HOME FREEZER ANNOUNCEMENTS  
AUGUST 18TH AND 25TH

BLUE NETWORK—10:15 P. M., E. W. T. and on  
N. B. C., Sunday, August 20th—2:30 P. M., E. W. T.



# WHAT IT TAKES To Be A Refrigerator Repairman

**Office of Civilian Requirements Makes a Study  
And Discovers the High Skill Needed In Such Work**

Prepared by The WPB Office of Civilian Requirements  
Philadelphia Regional Office  
In Cooperation with  
The Electrical Association of Philadelphia

The national war effort is a structure comprised of many factors over and beyond the actual production of airplanes, warships, ordnance and munitions.

Along with these are many others of vital importance, including mining, transportation, agriculture and electric refrigeration service. The breakdown of any one of these, while it might not cause the collapse of the entire structure, would definitely weaken it.

All of us have recently awakened to the seriousness of the nation's food supply, with which so much must be accomplished in the coming months, over and beyond the feeding of our own civilian population. It is in this connection that the subject of refrigeration takes a position of prime importance, although the preservation of food is in these times by no means the only important function electric refrigeration is performing.

In the last two decades mechanical refrigeration has become the popularly accepted method in the United States, not only in millions of homes,

but in countless commercial and industrial establishments as well.

Electric refrigeration is the method that permits the housewife to keep in edible condition the food upon which the health of her family depends.

It is a method utilized by practically all stores that sell perishable food stuffs of all kinds.

It is used by commercial food establishments engaged in the vending and processing of food stuffs.

It preserves food for indefinite periods of time in our warehouses.

Railroad cars, trucks, and steamships make use of this modern method of food preservation.

In addition, countless institutions, the Army and Navy, hospitals, dairies, etc. depend upon it.

Aside from this it has other uses of importance, among which are the many refrigerating installations for industrial processing in actual war plants. These functions include aluminum sheet cooling, rivet cooling, spot-welder tip cooling and metal

"cold" treatment, and x-ray machines.

Refrigeration equipment also preserves in hospitals, drug stores, etc. valuable vaccines, anti-toxins, etc., and in these days we cannot fail to mention that electric refrigeration is used in the processing and preservation of blood plasma.

Never has there been greater use and more need for electric refrigeration. Never has it been so important that installations be kept functioning without interruptions. It is in this situation that the refrigeration service industry finds itself on every hand called upon to do more than ever before in its history and with a greatly depleted number of skilled service men.

In this connection there are a number of factors to consider. Very little new equipment is being made and each year as existing installations grow older, the demand for service logically increases.

## Many Skills Needed In Work

The electric refrigeration service man is a highly skilled technician, with a general knowledge of numerous trades, including electrician, plumber, carpenter, and all-around mechanic, plus the highly specialized knowledge of refrigeration processing, properties, circulation of air, etc. Granting that he originally has the aptitude for the job, it is generally accepted that he requires about two years of experience and training for domestic service and four years or more for the more intricate and diversified commercial and industrial service.

It is apparent from the foregoing that when a well-trained man is lost

to the refrigeration service industry, the industry is faced with an almost impossible job in replacing him.

As was the case with agriculture, refrigeration service also lost many men who were inducted into the armed forces. On top of this, many additional men were lost to what are known as the "essential war industries." In the latter case, perhaps shorter hours, easier work, and high pay were motivating factors.

Service men today are working longer hours and in emergencies, like the physician, must be on call day and night.

The situation at this moment is acute, but in the next three months demands for service will show a marked increase, for hot weather is when refrigeration equipment and machinery are tried the hardest.

This peak in service calls during the summer months is a decided one, even though for some years the service companies have conducted campaigns to get users to have their equipment inspected and serviced during the winter months so as to relieve the pressure on service departments during the summer months.

A poorly trained, inefficient service man can not and should not be sent out to work on, and perhaps ruin, expensive equipment owned by a householder, or a commercial or industrial establishment, especially now when materials and replacements are practically impossible to obtain.

The industry is doing its best to meet this situation and is endeavoring to schedule work in the ratio of its importance; for instance, blood plasma, hospitals, industrial processing, wholesale and retail food storage, dairies, institutions, homes and other calls if time is found.

This vitally important industry should not be permitted to break down for lack of trained manpower. The consequences of such a breakdown would be grave indeed, for it would mean little if our farmers produced a sufficiency of food only to have it wasted through spoilage due

to lack of properly functioning refrigeration equipment.

## Situation In One City

**The Following Facts Are Presented Below Relative to the Refrigerator Repairman Situation in Philadelphia:**

Number of men (service or shop) in June, 1941 ..... 545

Number of men (service or shop) in April, 1944 ..... 275

Number of these men under 38 (draft vulnerable) ..... 157

Number of additional men needed to handle the peak load of service calls in next 4 months. 231

The territory to be covered by these men approximates 25 miles about the city or an area of 1,925 square miles.

Based on the above figures the following is a picture of the probable effect on commercial, industrial and domestic refrigeration service in metropolitan Philadelphia as of March 24, 1944:

Units in service (domestic and commercial) ..... 700,000

Less 15%—(85% reporting companies) ..... 595,000

Active service men by reporting companies ..... 288

Active service men by reporting companies 1941... 570

Active service men lost due to War Effort ..... 355

Active service men under 38 —Draft Vulnerable ..... 165

Estimating 40% Selective Service rejection—loss... 99

Estimated further loss to War Plants ..... 30

Total loss due to draft policy ..... 129

Probable working force.... 159

Normal units serviced per man ..... 1,000

Present units serviced per man ..... 2,000

Estimated unit load per man ..... 3,700

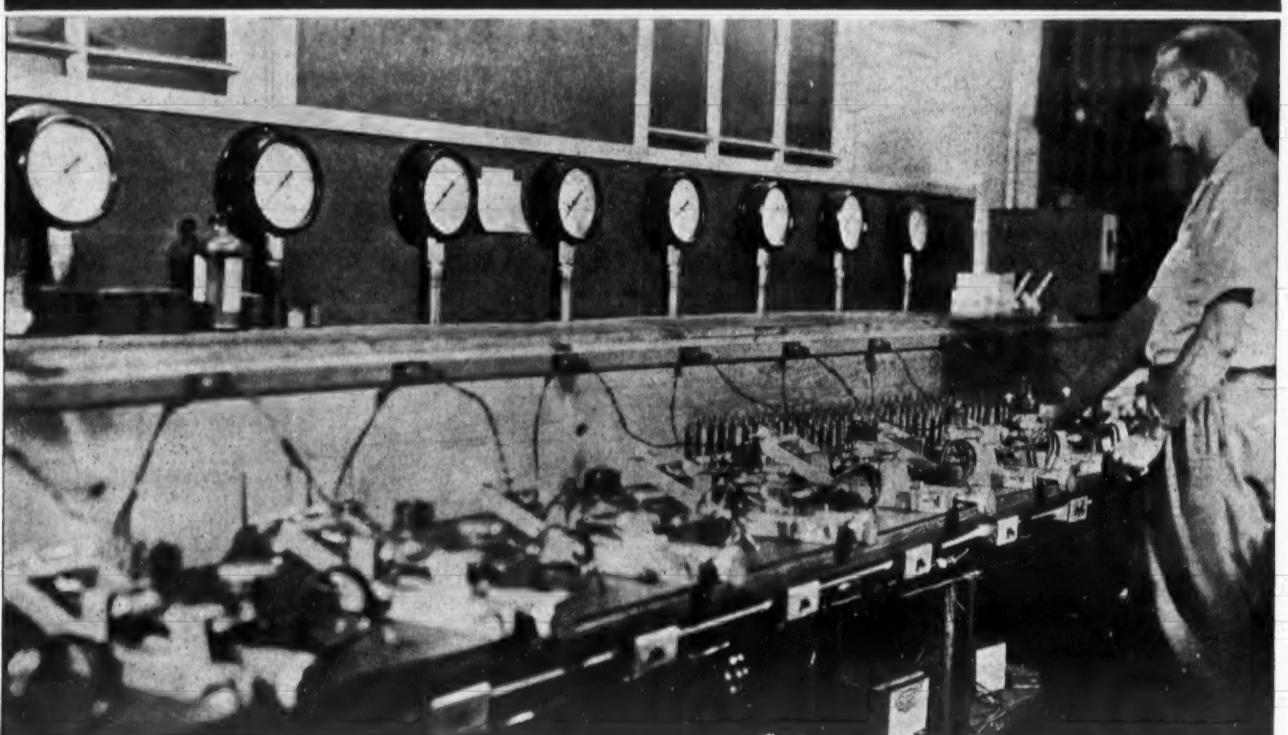
It is plainly shown that the average service man will have the responsibility of taking care of 3,700 units as compared to a normal of 1,000 units.

Due to the manpower situation, plus the fact that there is very little to sell, there has been a considerable mortality among dealers. This has resulted in certain areas, often quite distant from Philadelphia, being without refrigeration service. The larger companies in such cases must assume this responsibility.

These larger service organizations are making and have made every possible effort to educate men in electric refrigeration service work. Through numerous methods, including correspondence, field work, etc., and through The Electrical Association of Philadelphia working in con-

(Continued on Page 7, Column 1)

## Dress Rehearsal for Solenoids—



One of a series of actual photographs taken in the Alco plant.

## More rigorous and exacting than any later performance



Designers and Manufacturers of  
Thermostatic Expansion Valves  
Pressure Regulating Valves  
Solenoid Valves  
Float Valves



Now, More Than Ever,  
**BUY BONDS**

This battery of testing units, designed by Alco engineers, puts all Alco Solenoid Valves through a series of operational maneuvers far more severe than any they will encounter in actual service.

For instance, they must hold 200 lbs. of air against a dry metallic valve seat as ample assurance of positive seal when used with refrigerant and oil at lower pressures. A make-and-break circuit, cycling 42 times a minute, tests coils and plungers.

Each valve travels through these test fixtures twice, both before and after complete assembly. Every possible service strain is anticipated to make Alco Solenoids tighter, more responsive, more enduring, under actual working conditions.

ALCO VALVE COMPANY—853 Kingsland Avenue, St. Louis, Missouri

## REFRIGERATION ACCESSORIES

- Instantaneous Water and Beverage Coolers.
- Oil Separators.
- Two-Temperature Valves.
- Accumulator Heat Exchangers.
- Equalizer Tanks.
- Controlled Temperature Photographic Processing Units.
- X-Ray Refrigerating Units.

**TEMPIRE PRODUCTS CORPORATION**

47 PIQUETTE AVENUE DETROIT 2, MICHIGAN

## Artic (DU PONT METHYL CHLORIDE) SERVICE NEWS

### WAR-TIME NEWS LETTER

Dear Sirs:

Your Methyl Chloride requirements can be met ... provided everybody cooperates by ordering only what is needed, promptly emptying and returning all cylinders. Outstanding empty men so many less cylinders available for shipment. We can't get new cylinders ... so we must get the greatest use out of what we have.

Here's what John C. Minor, Chief of the Gas Cylinder Section, Container Division, War Products Board, wrote us on May 24:

"The need for steel conservation and the critical position of gas cylinders require suitable justification for their manufacture and delivery. Such delivery cannot be approved unless all possible use has been made of existing equipment. It is believed that over a considerable period of time marked improvement in cylinder turnover has been shown in the various gas industries with the exception of methyl chloride and sulfur dioxide. Unless improvement is effected in this field, the scheduling of orders for cylinders for those gases will not be justified.

"If this failure in cooperation is due to an effort on the part of distributors or users to accumulate a stock through unscrupulous fear of a possible future shortage of the gas, attention is called to Priorities Regulation No. 1, annexes 3/18/44, Par. 344.14, and to the penalties for violation of this regulation in Par. 344.16.

"Par. 344.14, Inventory Restriction reads, "... no person shall knowingly make delivery of any material whatever and no person shall accept delivery thereof if the inventory of such material or the person accepting delivery ... is ... in excess of the practicable minimum working inventory ... The term 'practicable minimum working inventory' is to be strictly construed."

"While some variations in rate of turnover are to be expected on the basis of current methods or rate of operations, it is believed that a 'practicable minimum working inventory' can, in general, be construed as a 30-day supply of methyl chloride or sulfur dioxide.

"Any application for scheduling of delivery of new cylinders will be considered in light of the above."

\*\*\*\*\*

In the interest of better service, we solicit your full cooperation in complying with the principles set forth in the above letter.

Very truly yours,

Thomas Doyle  
Manager, Chlorine Products Division

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

## Survey Shows Tools, 'Know How' Needed

(Continued from Page 6, Column 5)

School District of Philadelphia, for over a year classes in refrigeration service have been conducted in the Murrell Dobbins Vocational School. In connection with the latter, practically all of the actual equipment utilized for practical work, as well as the instructors, have been made available through the close cooperation of the refrigeration service managers.

The purpose of this survey has been to find out by personal investigation the reason why it takes two years to train a domestic refrigeration service man and four years or more to train a commercial service man.

The facts and figures presented herewith have been gathered together by The Office of Civilian Requirements in conjunction with The Refrigeration Service Managers Division of The Electrical Association of Philadelphia, who represent 875 dealers located in two-thirds of Pennsylvania, two-thirds of New Jersey, Delaware, and Maryland.

### Equipment Needed to Service Frigidaire Systems

Example—Service Equipment Necessary for Frigidaire Reciprocating and Rotary Sealed Systems

Two-wire test lamp for checking electrical supply and circuit.

Pocket as well as dial-type thermometer for the proper diagnosis of the unit operation. With few exceptions high or low room temperatures affect the operation and will result in complaints.

A watt meter is used to check the "no load" wattage of a motor by removing the compressor belt when motor difficulties are indicated.

Tube cutter, flaring block, and reamer.

Inasmuch as copper tubing is used in various installations as a means of connecting various parts of the system it will be necessary to have these tools and to know how to cut and flare tubing. It is particularly important to check the flare seat for burrs or splits as an imperfect fit may cause a refrigerant leak at that point.

Gauges. The relationship between the pressures within the high and low sides of the system and the refrigerant temperatures may be approximated by the use of gauges. The proper knowledge and uses of gauges is of vital importance for diagnostic causes of complaints and are also used to prepare a unit for replacement or check repairs made to a part of the system that would cause air to be drawn into the system if the pressure inside of the system was lower than atmospheric (a vacuum). Two types of gauges are required.

High pressure—range from 0-250 lbs. 5 lb. graduations.

Low pressure—range from 0-60 lbs. 1 lb. graduation.

Both of these gauges are absolutely necessary for adding or removing refrigerant, purging air from the system, making switch settings, testing for leaks.

Valves of the one-way type are also used with this assembly of gauges and seat only when turned in a clockwise direction. Incidentally this equipment must be checked periodically with a master gauge.

Safety equipment and practices. This work entails a certain amount of hazard to the service man as well as to persons near him. For this

reason a thorough study should be made of precautionary measures when emergencies arise.

Large glasses and a gas mask are recommended by Frigidaire to be kept in the kit in readiness for an emergency when  $SO_2$  is charged in the system. This particular vapor when released in a room in certain quantities makes breathing difficult and causes the eyes to water.

Leak Detector. This detector will function when filled with almost any type of alcohol but for best results use anhydrous methyl alcohol. When this torch is lighted and held close to the connections or location that might be leaking, it is necessary to keep the valve in a "not too tightly closed position" as the needle seat may "freeze" when the burner cools.

In addition to the above tools the following are also necessary: valve packing wrenches, fly wheel and pulley pullers, seal centering tools, screw drivers, open-end socket wrenches, pliers, hammers, etc.

### Knowledge That Is Needed

The refrigeration cycle.

The Pressure Temperature relations of "Freon-12."

The Pressure Temperature relations of Sulphur Dioxide.

The Pressure Temperature rela-

tions of Methyl Chloride.

The proper type of oil to use with these refrigerants under various temperatures produced by the equipment.

The effects of moisture on refrigerants.

How to handle refrigerants safely.

How to change a system from one refrigerant to another.

A.C. motors of Repulsion-Induction type.

A.C. motors of Capacitor or condenser type.

A. C. motors of Split Phase Type.

D. C. motors.

Electric wiring.

Proper fuses to be used.

Proper overload elements to be used.

Underwriters requirements.

Numerous type of pressure control switches.

Numerous types of water control valves.

Numerous types of thermostatic control.

Numerous types of liquid flow control valves.

Numerous types of pressure control valves.

The use of dehydrators and dehydrating agents.

Pipe fitting practice.

How to install soft drawn copper tubing.

How to install hard drawn copper tubing.

How to solder leaks in evaporators, etc.

Proper air circulation, gravity systems.

Proper air circulation, blower systems.

Proper construction of walk-in coolers.

Proper construction of reach-in refrigerators.

Proper construction of display cases.

Effects of cold weather on perishable products.

Effects of hot weather on perishable products.

Proper temperatures to be maintained.

Effects of open gas flames on meats.

Effects of actinic rays on meats (sky-glare).

Proper insulation for temperatures required.

A Refrigeration Service Man (Maintenance and Repairman) must be capable of completely tearing down and rebuilding (reoperating) the condensing units used. This requires a somewhat greater skill than is required of auto mechanics as tolerances are closer and certain moisture and acid conditions must be guarded against.

Listed below you will find a number of conditions which could be responsible for customer complaints, but which would not require a unit replacement—and therefore the service work would be done on the job:

Overload  
Poor ventilation  
Dirty condenser  
Blocked circulation  
Poor door seal  
Switch contacts stuck  
Improper switch setting  
Loose connection  
Line rattles  
Low outside temperature  
Lack of defrosting  
Crowded shelves  
Low voltage  
Bad relay  
Blown fuse  
High voltage  
Stopped restrictor.

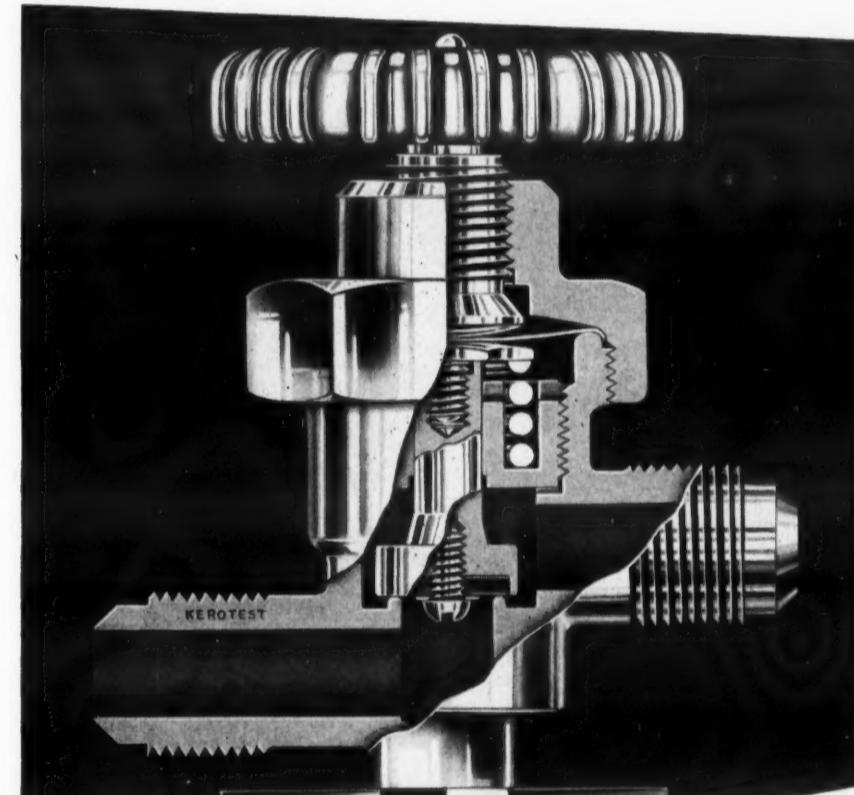
### A 'Few' of the Complaints Listed

The following is only a general list of the major complaints of household refrigerators—the way the service man gets the call:

1. Cabinet noisy
2. Evaporator collects too much frost
3. Condensation in cabinet

(Continued on Page 8, Column 1)

## KEROTEST . . . VALVES, FITTINGS AND ACCESSORIES



Precision  
CONTROLS FOR  
THE AIR CONDITIONING  
REFRIGERATION  
INDUSTRY . . .

# KEROTEST

Precision performance—essential in the control of refrigerants—is delivered by Kerotest Valves as the natural consequence of precision in manufacture.

Now in war service by the thousands, proving outstanding dependability under the most exacting conditions, Kerotest Valves are also earning service-stripes on the home fronts, protecting irreplaceable equipment year after year with built-in smoothness and durability.

Kerotest Valves in limited quantities are now available.

Write or wire

KEROTEST MANUFACTURING COMPANY  
PITTSBURGH, PA.



Dependable  
KEROTEST  
Values

**filtrine**  
HIGH EFFICIENCY  
WATER  
COOLERS  
for  
War Plant Cafeterias  
Army and Navy Mess Halls  
Libraries Hospitals Bottlers  
REMOTE and CABINET MODELS  
QUICK SHIPMENT  
Forty years of experience in building special cooling equipment.  
Send for complete catalog  
FILTRINE  
MANUFACTURING CO.  
Lexington Ave., Brooklyn 5, N.Y.

## Why Are Repairmen Hard To Replace? WPB Check-up Gives the Answer

(Continued from Page 7, Column 5)

4. Odor in cabinet
5. Vegetables will not keep
6. Meat will not keep
7. Cabinet too warm
8. Cabinet too cold
9. Unit won't run (open type unit)
10. Unit won't run (sealed type)
11. Unit noisy
12. Unit runs too much
13. Unit runs all the time.

Let us take as an example No. 9 "Unit won't run." There are approximately 24 "causes" for this failure to run on this complaint alone, and each of the following must be checked until the service man finds the point of breakdown:

1. Open type unit.
- A. Service Cord Pulled Out of Wall Receptacle.

Always check to see if the service cord plug is engaged properly in the wall receptacle, as this has been a source of a number of complaints.

### B. Blown Fuse in Feed Circuit.

Remove the wall plug and check the receptacle with a test lamp. If the receptacle is "dead" and the rest of the building has current, check the branch circuit fuse block and replace the blown fuse. Try to determine the cause of overload or short circuit.

### C. Bad Wall Plug or Terminal Connections.

If the wall receptacle is "hot" in the above test, then check the wall plug on the service cord also the motor terminal box connections for frayed ends and loose connections.

### D. Broken Wire in Electrical Circuit.

If the above points are all right and still the circuit is not completed, check all terminals with a test lamp for broken wires.

### E. Burned or Dirty Control Contacts.

Look at the contact points in the control to see if they are dirty or burned to the extent of preventing electrical contact. A good check for this is to short across the control terminals and if the circuit is then complete and the unit starts, the trouble is in the control.

### F. Thermostat Power Element Lost Charge.

The thermostat is moved to the running position by the pressure of the gas charge in the bulb and power element. This pressure overcomes the spring tension which tries always to open the contacts. If its gas charge is lost spring tension keeps the contacts open. Change the power element or the control.

### G. Inoperative Motor.

1. Check for blown fusetron, if the motor has this type of protection.

2. Rest may be stuck open. The external type is easy to check by shorting across the terminals. Internal type may be checked the same way depending on the type of motor (or the end bell may be removed).

3. Centrifugal switch may be stuck open or may have badly burned contacts.

4. Capacitor on motor (if that type

of motor) may be open or shorted, check it.

5. If a brush type motor, the brushes may be bad.

6. If a brush type motor, the commutator may be dirty or burned.

7. Motor windings may be burned or open. Check for a ground in the windings and then for an open circuit.

### H. Stuck Compressor.

If the compressor cannot be turned over by hand or is extremely hard to turn over, it is stuck. Do not confuse this with good compression.

1. This may be due to lack of oil in the crankcase. Check the oil level and add oil if necessary.

2. If the oil level is satisfactory, remove the compressor head and check for evidence of corrosion due to moisture.

3. The compressor may have to be disassembled to find the trouble if the above points check all right.

### Mastering Cold Controls

#### (Norge Refrigerator.)

It requires at least three months to master cold controls.

Since 1930 up to the present time, 33 different type controls were used on domestic refrigerators.

Eight different type overload coils were used on the 33 different type controls.

Must learn the cut-in and cut-out bulb temperature. Eleven different temperature settings.

Must learn the cut-in and cut-out sleeve temperature. Seven different settings.

The number of parts that make up a cold control:

Differential adjusting screw  
Toggle lever  
Transfer spring

Operating lever  
Control knob  
Locking spring  
Adjusting cam  
Contacts  
Light receptacle  
Light receptacle screw  
Control shaft nut  
Loading spring  
Bellows bulb  
Contact springs  
Bellows  
Bellows tube  
Bellows Magnet (D.C. only).

These parts must be replaced if defective, therefore the man must know the part and what part goes in to be able to replace defective parts.

Why it Takes Four Months to Master a Rollator.

What is a rollator?

How is compression obtained?

Nine different type rollators, at present using only three different types.

Disassembling and re-assembling rollators.

Check rollator parts for moisture condition, badly worn parts.

Forty-one different parts make up a rollator.

How to install vibration dampener.

Oil charge for rollators.

Testing rollator efficiency.

How to change seals. (Four different type seals).

Proper method of lapping in seals.

Re-conditioning lapping block.

Care of blocks when not in use.

What is the dividing point between the high and low pressure vapor.

What prevents the pressure from forcing oil back into the suction line.

"Coldspot" Information on Shop Work.

Following estimates of time required for learning different operations were made:

Dismantling units ..... 6 months

Removing and dismantling compressor ..... 12 months

Soldering compressor joints ..... 4 months

Reassembly ..... 6 months

Inspections ..... 12 months

Compressor repairs (lapping, etc.) ..... 9 months

It is impossible to rotate new service men through the shop, in order to facilitate training, as most of the repairs handled differ from those made in the field. Testing instruments and special apparatus used here are not available in field. Conversely, a shop mechanic would be helpless in field without his special apparatus.

Training time is very much dependent upon ability and previous experience, such as being in electrical or mechanical field.

There are 25 models and over 500 separate parts with which service

men must be familiar.

Refrigeration Service Establishments Can Be Placed in Three Separate Classifications.

1. Servicing 90% or more commercial installations.

2. Servicing 40-60% commercial installations.

3. Servicing 90% or more domestic boxes.

There is a particularly high skill required to operate in No. 1 group and earnings average better than \$2 per hour, \$80 to \$100 per week.

In No. 2 group earnings will run \$45 to \$75 per week, about 90 cents to \$1 per hour.

In No. 3 group the pay scale is lower and earnings run \$39 to \$50 per week.

The reason for this is quite apparent as the man becomes more proficient he is able to handle larger and more complicated commercial installations. After receiving his basic training the actual work done on equipment in the field is the only practical way he has to learn—no two installations are exactly alike, each unit is individual and has peculiar characteristics.

(To Be Concluded In  
July 31 Issue of the News)

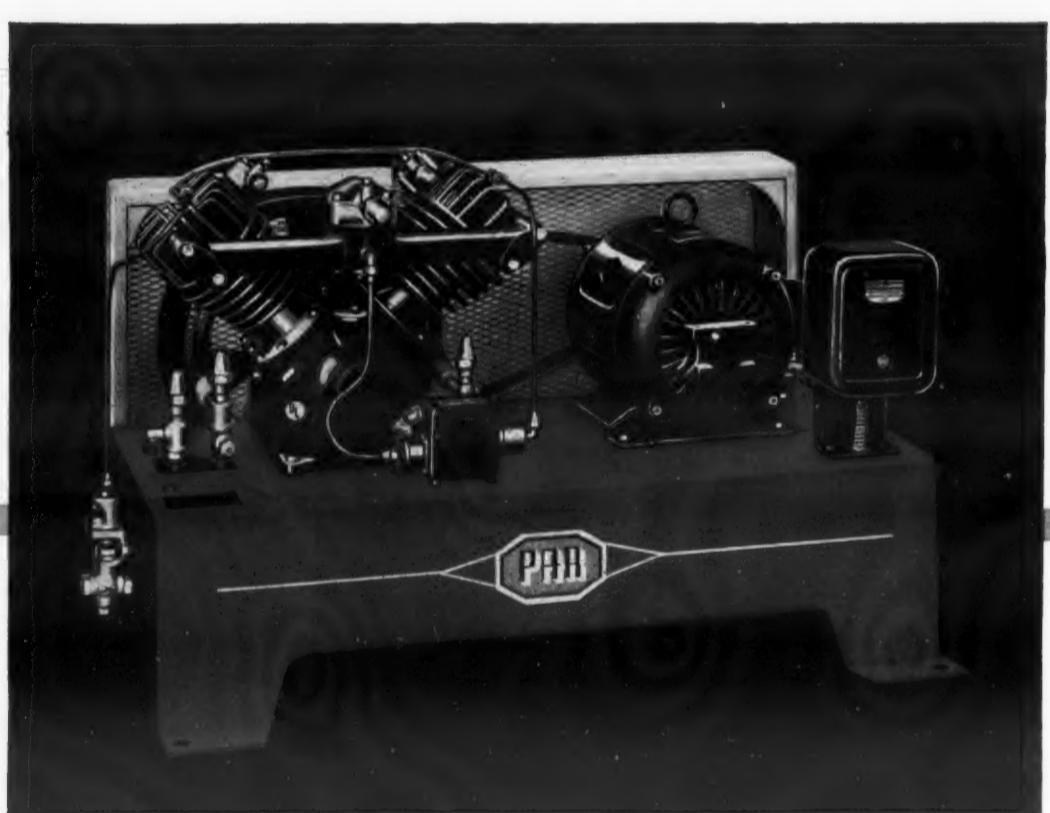
## C. B. Wilson Appointed Gunn Sales Manager

LITTLE ROCK, Ark.—C. B. Wilson has been appointed sales manager and buyer of the Holcomb Gun Co. here, dealer in appliances, radios, furniture, floor covers, and heating equipment, announces Holcomb Gunn. For the past 12 years Mr. Wilson had been new business manager of the Arkansas division of Arkansas Louisiana Gas Co. A graduate of the Georgia School of Technology, has also been with the Henry L. Doherty organization, with various Cities Service affiliates as housekeeping and commercial sales engineer, and had been purchasing executive with Western Electric Co. in Atlanta.

## Eversden Takes on McIntire Line

PHILADELPHIA—F. M. Eversden & Associates, recently established manufacturers' agent, has been appointed representative for McIntire Connector Co. in Pennsylvania, Delaware, Maryland, District of Columbia, and the southern half of New Jersey.

Mr. Eversden was formerly with Kerotest Mfg. Co. and at one time was district service manager of the Service Parts Division of Borg-Warner Corp.



### Par Model HW-30

- A 3 H.P. water cooled unit for locker plants, ice cream plants, super markets and multiple water coolers.
- Four cylinders, large capacity, slow speed, crank type compressor with bull's-eye sight oil gauge.
- The fast pull down and high capacity features of this unit assure economical refrigeration.

● Write for illustrated brochure of details.

● BY COMPARISON—YOU'LL BUY PAR.

**PAR** Division

**LYNCH**  
MANUFACTURING  
CORPORATION  
Defiance, Ohio, U.S.A.

## VIRGINIA Refrigerants



"EXTRA DRY ESOTOO", "V-METH-L" AND METHYLENE CHLORIDE

AGENTS FOR KINETIC'S "FREON-12"—AND "FREON-22"

**VIRGINIA SMELTING CO.**

WEST NORFOLK, VIRGINIA

72 Beaver St., New York 5

131 State St., Boston 4

TESTED  
PURITY  
for  
SERVICE  
SURETY

FREE  
FACTS

## Production Quotas Set For Iceboxes In Third Quarter

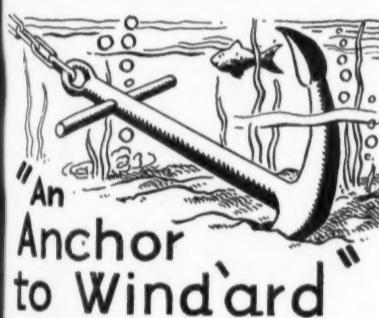
WASHINGTON, D. C.—Production quotas for 21 ice box manufacturers for the period from July 1 to Sept. 30, 1944, have been announced by the War Production Board. Companies included in this order, and the amounts scheduled for each follows:

American Fixture & Mfg. Co., St. Louis, Mo.	6,000
Arctic Refrigerator Co., Brooklyn, N. Y.	7,000
Atkins Table & Cabinet Co., Brooklyn, N. Y.	5,000
Brunswick Refrigerator Co., Brooklyn, N. Y.	4,000
Craftbilt Cabinets, Burbank, Calif.	3,000
Doherty Stirling, Inc., Baton Rouge, La.	2,000
Dutch's Victory Refrigerator Box, Brooklyn, N. Y.	2,500
Dunsteel Co., Hannibal, Mo.	200
Fly-Boro Metal Products Co., Brooklyn, N. Y.	6,000
Globe Wood Products Co., Brooklyn, N. Y.	1,500
Home Building Corporation, Kansas City, Mo.	150
Ice Cooling Appliance Corporation, Morrison, Ill.	18,325
Island Refrigerator Co., Brooklyn, N. Y.	5,000
King Refrigerator Corporation, Brooklyn, N. Y.	7,500
Maine Manufacturing Co., Nashua, N. H.	12,000
Modern Refrigerator Works, Glendale, Calif.	3,000
Precision Metal Products Co., Brooklyn, N. Y.	6,000
Sanitary Refrigerator Co., Fond du Lac, Wis.	15,000
Soddard Manufacturing Co., Mason City, Iowa	3,000
Success Manufacturing Co., Gloucester, Mass.	6,000
Ward Refrigerator & Mfg. Co., Los Angeles, Calif.	15,000

## Plant Addition Boosts Master Production

SIOUX CITY, Iowa—Production capacity has been increased to nearly 30,000 lockers a month by the completion of a new addition to the plant of Master Locker Sales Co. here, the third addition constructed during the past 18 months, announces W. W. Wilson, Master president.

Latest addition permitted installation of two new square shears.



Any seagoing man will tell you that even the smartest navigators and storm-tossed skippers bank on having an "anchor to wind'ard" to help weather the big blows.

## U.E.I. BALANCED TRAINING

—designed for the needs of men either old or young in refrigeration—provides a background of reliable technical knowledge and actual shop experience that you can bank on any time. It is a course of sound, practical home-study instruction balanced with actual shop work; a program that helps prepare men to make the most of the opportunities offered in refrigeration and air conditioning.

Founded in 1927, U.E.I. has been training men in refrigeration SEVENTEEN consecutive years! There is nothing experimental or unproved in the U.E.I. Balanced Training method of helping ambitious men get farther faster. It's worked for years; it's working now. Hop to think! Wouldn't this training help YOU in your present job—or the one you're aiming at? Then get busy and MAIL the COUPON below for FREE information. Don't wait until tomorrow—NOW.

MAIL THIS COUPON TODAY

**UTILITIES**  
Engineering Institute  
1314 W. Belden Ave.  
Chicago 14, Ill.

Please give me more information about Refrigeration and Air Conditioning Training, as mentioned in your Air Conditioning & Refrigeration News, July 17, 1944 ad.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
State \_\_\_\_\_

## Electric Water Heaters Will Be Produced Now at 37% of the Pre-War Rate

(Continued from Page 1)

substitutes after restrictions were placed on the use of metal for this purpose. The manufacture of metal jackets requires less man-hours than paperboard jackets. Also the present critical shortage of paper makes it necessary that other materials be used.

Manufacturers are now permitted to make metal jackets for water heaters from allotted materials or from aluminum which is specifically authorized for jackets by WPB under the aluminum order, M-1-1. In addition manufacturers are being permitted to use materials in inventory on May 8, 1944, and those obtained from frozen, idle, and excess inventories as were already allowed under previous restrictions.

Order L-185, Water Heaters, was amended to make the foregoing changes. Previously, electric water heaters were controlled by Order L-65, Electric Appliances, which was administered by the Consumers Durable Goods Division, but this type of water heater has been placed under Order L-185 of the Plumbing and Heating Division so that production of all water heaters may be controlled by the same regulation.

According to the revised L-185, WPB will authorize limited production of electric water heaters on

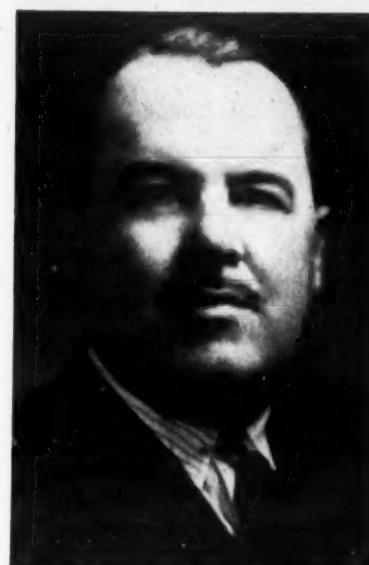
Form GA-1850 for each manufacturer so that aggregate production for each calendar year will not exceed 37% of the base year production of the industry as a whole. Production will not be authorized in any plant, however, where such production or labor requirement will interfere with war production in that plant or in any other plant located in that area.

Production will be limited to three sizes, based on water storage capacity, and only one model in each size will be allowed. However, a change in the number or design of heating elements will not be considered a change in size or model.

Production of non-electric water heaters is permitted for each manufacturer at a certain percentage of his unit production of the same classification of water heater for his base year (1941). Schedule A of the order specified percentages for each kind of water heater. The new schedule, compared with the previous one, follows:

Direct Fired Water Heaters	New Quotas	Previous Quotas
Underfired water heaters	80%	65%
Coal and wood-fired water heaters	100%	70%
Side-arm heaters	70%	70%
All others	50%	30%
Indirect water heaters	57%	20%

## Kelvinator Adds Rambeau



LAWRENCE D. RAMBEAU

Detroit—Lawrence D. Rambeau has been appointed to the advertising and sales promotion staff of the Kelvinator division of the Nash-Kelvinator Corp., it was announced last week by C. J. Coward, Kelvinator's director of advertising. Rambeau will be in charge of Kelvinator's program of sales training for the postwar period.

In war work with the Glenn L. Martin Co. recently, he had been with the Jam Handy organization.

## Dale Distributing Co. To Handle Admiral's Lines In 3 Areas

NEW YORK CITY—Dale Distributing Co., formerly the largest distributor of Admiral radio, has been appointed distributor for Admiral radios, refrigerators, electric ranges, and home freezers for the trading areas in New York City, Hartford, Conn., and Newark, N. J., it has been announced by the Admiral Corp. headquarters.

Dale Distributing Co. was established November, 1932, and became distributor for Admiral in 1938. They were one of the first to handle the Admiral line.

Maurice S. Despres, president of Dale, has devoted part of his time in working for the government in war work. For the past year and a half, he has been managing director of Electronic Research Supply Agency, a government-owned operation which serves as a central point of distribution for critical electronic components required in government sponsored research and development projects. Rene M. Jacobs is vice president of the company.

Postwar, the company will have warehouses and showrooms in New York, Newark, and Hartford, according to a statement made by Mr. Despres, who is also a director of the Admiral Corp.

**ANOTHER first BY Admiral**

**FLEX-O-PLAN**

Flexible Remodeling Plans Adaptable to Any Store

shape of store. Mr. Walker's abilities are shown by the fact that he is currently re-designing the showrooms of a major automobile manufacturer and for a large maker of tires and accessories.

Admiral will consolidate these plans into book form, to be furnished to all dealers who request it. Admiral Flex-o-Plan will include all possible departments, even to a model laundry, model kitchen, convenient service facilities; every branch of a completely equipped store will be found in Admiral Flex-o-Plan.

**Admiral FLEX-O-PLAN**

for the RADIO and APPLIANCE Store of Tomorrow

George W. Walker

A Book of Store Planning Ideas

Reserve your Free Copy. Although not ready for distribution, we anticipate a heavy demand for Admiral Flex-o-Plan. To assure yourself a copy, write to Admiral Corp., Dept. F, requesting it.

★ ★ ★

Win a Store Remodeling Job!

Watch for details of contest to be announced later. Prizes will be store remodeling jobs for the best ideas.

**Admiral Corporation**

3800 W. CORTLAND ST. CHICAGO 47, ILLINOIS

TUNE IN CBS 2:30 P.M. E.W.T. SUNDAYS FOR ADMIRAL "WORLD NEWS TODAY"

World's Largest Manufacturer of Radio Phonographs with Automatic Record Changers

**Memo to: All Manufacturers Of Commercial Refrigeration  
And Store Fixture Equipment**

**Subject: Distribution in Central and Southern Ohio**

Since our home office is located in a small town a little off the beaten path, not many manufacturers call on us, and we've been too busy selling equipment this past while back to call on them. But now we'd surely like either to see more of them, or at least to hear from them. Here's why:

Even though we are a bit up the side road, we do a very sizeable business as distributors of commercial refrigeration equipment throughout the Central and Southern parts of Ohio. Our financial situation is good, we have several field men out, and the war hasn't put us out of business by a long shot. So --

Right now, we're all steamed up and able to sell more equipment than we've been getting, and our postwar plans are BIG.

If some manufacturer of fixtures or equipment of any kind which would fit into our operation reads this ad, we'll certainly enjoy hearing from him right away.

E. G. Sanders

**MORTON SHOW CASE CO.**

P. S. I'm now busy getting our big Columbus branch store under way, so better write me at 110 East 4th Street, Dayton, Ohio.

**WE - CARRY - THE - LARGEST - STOCK - OF FIXTURES IN OHIO.**

## An Acknowledgment by Crosley

**TO THE PUBLIC...** We who work at Crosley owe our livelihood to millions of fellow Americans who have bought Crosley radios, refrigerators and other household appliances.



To these millions of customers, we also owe our modern plants and equipment, and the important position we hold in the home appliance industry.

When war came, we converted immediately and totally to war production. As long as war materials are needed, we will continue to produce them to the limit of our capacity. We are turning out the weapons of victory with the same skill, the same experienced watchfulness, and to the same uncompromising standards that distinguished Crosley prewar products.

After the war, we shall again produce for the public the obligations of peacetime — the finest refrigerators, radios and appliances they can buy — applying the lessons of war to a program of continuous product development and improvement.



**TO THE "TRADE"...** We have supplied American homes with Crosley refrigerators, radios, ranges, washers and ironers through loyal Crosley dealers and distributors. These business partners know that our policy before the war was to provide them with the right products at the right prices together with consistent advertising, sales promotion and dealer help. This will continue to be our policy.



Reconversion, after the war, will be accomplished as quickly as our duty to national security permits. Our postwar Crosley products will embody the same values that, in our last

peacetime year, gave Crosley dealers and distributors the greatest sales increases in their history. We assure fair and equitable distribution until a fully restored production schedule makes possible immediate delivery of all orders.

## Low Maintenance Cost Essential to Sell English Mass Market, Engineers Say

LONDON, England — To attain wide acceptance in the British market, the household refrigerator must have a low first cost and extremely low maintenance cost, and the typical American mechanical domestic unit does not necessarily meet these specifications, contends W. N. C. Clinch and F. Lynn, representing two utility companies, who recently discussed the subject before the Institution of Electrical Engineers here, reports the English journal, *Modern Refrigeration*.

### REPAIR CHARGES MIGHT 'EMBARRASS' LOW INCOME FAMILIES

"Robustness and reliability will become increasingly important as refrigerators are introduced into households of lower incomes, where the family budget is so fully absorbed by regular expenditure that there is little or no margin for unexpected demands and a repair or service charge, acceptable in more affluent circles, might be a real embarrassment," say the authors of the paper.

"The climate of this country is temperate, and, under normal peace conditions, the majority of people have excellent facilities for buying the more perishable commodities in small quantities and at regular intervals from tradesmen who provide cold storage in bulk. In such circumstances, a maintenance charge for the domestic refrigerator is unlikely to rank high in priority for

attention and there is a danger of the machine falling into disuse," declared the authors.

Operating cost of a household refrigerator designed for the lower-income families in England is not nearly so important as the possible service charges, it is claimed. The average family could more readily accommodate an extra 3d. (1.2 cents) per kWh. than a service charge of 30s. (approximately \$6) only once in two years, the utility men believe.

### 4-FT. UNIT SUGGESTED

In view of these factors, and the belief that the demands on such a household refrigerator for social entertainment would not be heavy, the authors suggested that a 4-cu. ft. absorption type unit merited careful consideration for the English mass market.

They give considerable attention to an absorption refrigerator controlled only by a time switch. Under control of a time switch, heat is applied continuously to the absorber for 1½ hours and then cut off for 6½ hours. During the first part of the cycle the refrigerant flows as a liquid into a storage container immediately above the evaporator, while in the second period the direction of flow is reversed; the refrigerant evaporates in the evaporator, with consequent extraction of heat from the cabinet, and returns to the absorber.

Heat extraction takes place only 6½ hours out of eight, but the evaporator coils are immersed in a tank of liquid, described as a cold storage box, which acts as a buffer to maintain an average low temperature throughout the cycle of operation.

### ABSORPTION MACHINES FAVORED

"Absorption refrigerators have a greater energy consumption than the compressor type, but can be set to operate at 'off-peak' requirements," said the authors. "They have less overload capacity and therefore smaller capabilities in ice-making. In the type described above, the cabinet was not under thermostatic control but depended upon the maintenance of an average temperature well within the safe condition for food. To counterbalance these disadvantages there are no moving parts."



**TO OUR ORGANIZATION...** To the 9,000 workers who are Crosley we are obligated to provide satisfactory working conditions, a full return for their effort, encouragement of individual initiative and self-improvement, complete understanding, and sincere recognition of the importance of the individual.

To former Crosley people now serving their country, we pledge every consideration in all our postwar planning plus every assistance in readjusting themselves to the way of life they have struggled to preserve.

**TO AMERICAN INDUSTRY...** In the neighborhood of 2500 other companies provide materials, fabricated parts and special equipment to speed up Crosley production of more than forty vital war weapons—including 2-way radios, gun sights and secret radar applications. Each of these companies has made a contribution in quality and workmanship which we are proud to acknowledge.

These same manufacturers and others will help us to produce Crosley refrigerators, radios, ranges, washers and ironers when conditions again permit their manufacture for consumer use. We have worked together to win the war. We shall keep on working together to insure the peace.

As a substantial unit in American industry, we have a continuing obligation to other units to maintain high standards for our products and high ethics in our business dealings. We hope our business policies shall reflect credit upon American industry as a whole, as well as upon the Crosley organization.

**CROSLEY**

THE CROSLEY CORPORATION  
CINCINNATI, OHIO

*Peacetime Manufacturers of Radios, Refrigerators, Household Appliances, and the Crosley Car. Home of WLW, "The Nation's Station."*

## Huebner Heads Alter Appliance Sales



**H. C. HUEBNER**

\*\*\*

CHICAGO — H. C. Huebner has joined the Harry Alter Co. as the sales manager of its appliance division.

Announcement of Mr. Huebner's appointment follows closely upon the securing of Crosley appliances and Coleman heating products for distribution in the northern Illinois and Indiana areas.

Starting in 1924 as the distributor for Frigidaire in Chicago, Mr. Huebner directed operations there until 1936 when he was sent to the Milwaukee territory as branch manager of Frigidaire. Leaving Frigidaire in 1938 to become district manager for Easy Washing Machine Co. in the twin cities, Mr. Huebner served with this organization until 1939, when he returned to a post with Frigidaire in Chicago. He remained in this position until priorities compelled a cessation of activities. Since that date he has devoted himself to special sales consultant work in promoting products which could be sold during the war period.

### Aronson Joins New Firm

PHILADELPHIA — Leon Aronson, formerly with Melchior, Armstrong, Dessau Co. and Victor Sales & Supply Co., has joined Electric Warehouse at 3640 Elder St. here.

## NOW AVAILABLE AT PHILCO

### SEVERAL EXCEPTIONALLY CHOICE POSITIONS FOR REFRIGERATION DESIGN DRAFTSMEN AND ENGINEERS

To several top creative draftsmen and engineers in the refrigeration design field, this message is directed. In every way, these positions are worthy of the best talents this industry affords. They are permanent. They are loaded with opportunity for accomplishment and advancement with the organization which marked up the most spectacular rise in the entire refrigeration field, in the years just before the war. For background, you will probably have a science degree, or comparable experience. You doubtless have been working on refrigeration or air conditioning design projects for five years or more. You are proud of what you have done, and can tell us about it. Write us in detail as to your experience, education, family and draft status, and salary. Your letter will be treated in strict confidence.

*Employment subject to W. M. C. rules*  
Write to Wm. G. Ulmer, Jr.

**PHILCO CORPORATION  
PHILADELPHIA 34, PENNA.**

## Dakota Locker Operators Plan For Boom In Home Freezing

SIOUX FALLS, S. D.—Anticipating rapid postwar acceptance of home freezer cabinets, the South Dakota Frozen Food Locker Processing Association was in agreement at its annual convention here late last month that the home units should not be regarded as unwelcome competition but rather as a supplementary development giving their own business greater importance and broader opportunities for service.

Asserting that freezing will prove as revolutionary a development in food preservation as invention of the tin can, L. T. Potter of Waterloo, Iowa, treasurer of the National Frozen Food Locker Association, declared that because of rationing the public is "food conscious" and "ripe for this innovation."

### MUST PROVIDE CHEAPER SERVICE

Consumers are finding out "how delicious frozen foods can be," he said, appealing to the locker men to do "a better job" and to popularize locker service "by making it as cheap as possible."

"Most manufacturers," he said, "have in the blueprint state, ready for production, an electric refrigerator in which is embodied a frozen food compartment of approximately 50-pound capacity. It will probably be available at popular price."

The owner of one of these machines can keep the bulk of his frozen fruits, vegetables, and meats in the parent locker, taking home enough food at a time to last the family several days. You can see there will still be a need for present locker plants as main storage centers."

### TYPES OF CABINETS

Meanwhile, he suggested, commercial plants can expand their services by setting up free kitchens for canners.

R. R. Farquhar of Omaha, Neb., secretary of the Frozen Food Locker Manufacturers' and Suppliers' Association, said home storage units will fall into the following three classes:

1—Small frozen food chests similar to ice cream cabinets, with a capacity of from four to 12 cubic feet, selling from \$150 up.

2—Household electric refrigerators with one-third of their space devoted to a freezing section, costing upward from \$250.

3—Large freezers or freezing rooms for farms and ranches, priced at \$500 and up.

Farquhar, who is a contractor and installer of locker plants and operator of chain of plants in Nebraska and Iowa, further predicted that all refrigerators, with or without special freezing compartments, will probably be increased in capacity from the present standard of six cubic feet to eight or nine cubic feet.

### LOCKER PLANTS AS CHEF'S AID

He envisioned facilities for preserving unbaked pie, bread, and pastry in hotel and restaurant kitchens as a leading commercial aspect of locker development.

"A chef who finds himself caught with only half as big a dinner crowd as expected won't have to throw away the dough he has prepared," Farquhar said. "He can leave the unbaked delicacies in the tins and put them in lockers for future use. They can be taken out and baked in ovens just as though freshly mixed."

Frozen food locker plant operators, he said, can expect future competition from door-to-door sellers of frozen foods as well as from stores already handling these products.

L. E. Bothell of Monroe, Wis., director of the National Frozen Food Locker Association and chairman of its accounting committee, urged the adoption of a uniform accounting system for the locker industry to standardize records.

### OPERATOR AS UNIT DEALER

Concerning the possibility of operators becoming jobbers for home units, Bothell said that manufacturers are interested in distributing the plants through established and experienced locker men "because they are familiar with temperatures and the proper processing of food products."

John B. Waite of Chamberlain and Chester Dean of Vermillion were

## Back With Industry



STERLING SMITH

Who has resigned as Chief, Refrigeration Section, WPB, to take over Sept. 1 as manager of the commercial refrigeration division of Mills Industries in Chicago.

elected president and vice president, respectively, of the South Dakota association. B. A. Thomas of Sioux Falls was re-elected secretary, and E. E. Drake of Aberdeen was named a new director.

Sixty-two operators from 50 South Dakota towns attended the conclave, with all sections of the state represented except the Black Hills area.

How do you test the PURITY of SULFUR DIOXIDE and METHYL CHLORIDE?

Just look for the name  
**ANSUL**



Available in carload lots or handy cylinders sized for servicemen's needs.

ORDERS FILLED PROMPTLY through your Ansul Jobber.

**ANSUL CHEMICAL COMPANY**

MARINETTE, WISCONSIN

Agents for Kinetics "FREON-12"

AC-244

WILL YOU BE SET FOR  
POST-WAR SELLING?

Don't let war's end catch you napping. Get set for the huge post-war market with a distribution franchise to sell Sherer's A to Z Commercial Refrigerator line.

Juicy steaks, garden-fresh vegetables, fruits, fish, and wild game will be frozen in Sherer Freezers by thousands of Americans on farms, in stores and rural homes the country over. These freezers, and display refrigerator cases of all kinds will be available when restrictions are removed. Sherer reach-in refrigerators, walk-in cooling rooms, besides other commercial refrigeration products, as well as the Sherer distribution franchise are available RIGHT NOW! Sherer—a pioneer manufacturer of fine commercial refrigerators, today serving our country with all types of refrigerators for the armed forces and essential civilian requirements, offers you a franchise on its complete line today, setting you up to handle the profitable post-war demand. Write or wire for complete details.

★ ★ ★

Incidentally, Sherer regularly publishes a Bulletin giving up-to-the-minute interpretations of regulations L-38, P-126 and others affecting the operation of your business. They are written in your language (not legal terminology), with actual examples of how these new regulations work out. We will be glad to send you this bulletin service without charge or obligation. Just write us asking that your name be placed on our Special Bulletin Mailing list.

**SHERER-GILLETT CO.**  
MARSHALL, MICHIGAN

**NIBCO**

**WROT** *Fittings*  
AND TUBULAR PARTS

**AIR CONDITIONING** in the homes and buildings of the future will be as common as refrigeration is today. NIBCO is proud to have had a part in the development of better air conditioning equipment in the past... and NIBCO WROT and Cast Fittings and parts will play a big role in the post-war expansion. Whenever you need fabricated tubular products or non-ferrous castings, valves, or fittings, specify NIBCO for lowest production cost. Precision makes assembly easy. We'll be glad to help you now in post-war planning.

**NORTHERN INDIANA BRASS CO.**  
ELKHART, INDIANA.  
VALVES AND FITTINGS SINCE 1904

# Air Conditioning & Refrigeration NEWS

Trade Mark registered U. S. Patent Office; Established 1926 and registered as Electric Refrigeration News

F. M. COCKRELL, Founder

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## OCR Learns What People Need

WPE's Office of Civilian Requirements has been making extensive surveys out in the field to determine what durable goods consumers need and want most. These surveys will act as a guide in planning reconversion.

To all market analysts, their results will be most interesting. Here is the list of items most needed and wanted, in order:

1. Washing machines
2. Electric irons
3. Mechanical refrigerators
4. Ranges
5. Toasters
6. Radios
7. Sewing machines
8. Vacuum cleaners
9. Heating stoves
10. Electric fans
11. Water heaters.

Some 44% of all consumers interviewed say that they need one or more of these items *immediately*, and will buy as soon as offered. A greater number said that their major postwar purchase would be a new home—and that, of course, would involve the installation of several of these appliances, along with some not mentioned (especially dishwashers).

### ELECTRIC MOTOR SITUATION CONTROLS APPLIANCE PLANS

One cannot take this list, however, as a guide to the *order* in which production of civilian appliances will be resumed. That would be ideal, from OCR's and the consumers' standpoints, but such action is impossible because of the extreme shortage of fractional horsepower electric motors.

Not until aircraft and shipbuilding programs are cut back will the electric motor situation become any easier. That may be quite awhile!

## They'll Do It Every Time

By  
Jimmy  
Hatlo



So, the first items on the docket will be small household appliances, such as alarm clocks, lawn mowers, carpet sweepers, garbage cans, wash boilers, cooking and tableware. Some electric fans will be produced, and quite a few electric ranges. Water heaters may soon be on the list, too.

But the big-demand, "big ticket" items will be last to appear again, even though most needed. This, in turn, may hold up the coming boom in home building, for new homes will not be complete without the major appliances.

This home building boom will really be something, though. They estimate at least 800,000 new non-farm dwelling units will go up annually for six years following the war's end *just to provide for new families alone*. Now there's a real market—and no trade-ins to worry about! It is believed that the number of family units in the United States will have increased 20% by the war's end!

### POSTWAR SALES POSSIBILITIES ARE REALLY TREMENDOUS

Added to this tremendous backlog will be the accumulated replacement market—which should in itself more than equal the best prewar years the appliance industry has ever known.

Then come sales to the unsaturated portion of the prewar homes, residents of which will now in great part have the money to buy the appliances they've always wanted but felt they couldn't afford before.

Last but not least will be the hundreds of thousands of newly electrified farms, and even those which aren't electrified (which can be served by gas-engine-drive units and by absorption-type refrigeration).

### BIG THINGS EXPECTED FOR FIRST 5 YEARS

Lumping all these markets together lead competent analysts to make predictions of the following annual potential during the first five years of resumed full production:

- 5,000,000 home refrigerators (all types)
- 2,500,000 washing machines
- 1,250,000 electric ranges
- 2,000,000 vacuum cleaners
- 1,000,000 home freezers
- 600,000 dishwashers.

Two items on which nobody can seem to agree are portable air conditioners and radio sets. On the former, estimates range from 100,000 to 2,000,000, believe it or not. Much will depend on the price, the development, and attractiveness of the product; still more on the merchandising effort placed behind it. It's likely that it may start at the 100,000 mark, and shoot skyward every year thereafter.

### TELEVISION AND FM HOLD KEYS TO RADIO BOOM AFTER WAR

As to radios, much depends on the progress of FM and television. These will hasten obsolescence, of course, as would styling to conform to home furnishings. Anything from 16,000,000 to 28,000,000 goes as a guess in this field.

How soon television will come into the picture depends upon a number of extraneous factors, chief of which will be the attitude of the Federal Communications Commission. In no other field of merchandising does the government have such a throttling grip on the industry's neck.

But when it does come, you can bank on it that this will be a real business for the specialty dealer.

It's also entirely likely that electronics, or "radionics" as some like to call it, will provide a springboard for the launching of many new devices to sell to the consuming public.

Electronically controlled home lighting, electronic safety devices for automobiles, ultra-high frequency cooking—these are but a few of the possibilities. Dust precipitators are in the offing. So are germ killers for the home. Nor should we overlook the great possibilities of new and highly economical home heating units.

Those appliance dealers who have gone into furniture and home furnishings will find many new things to promote if they decide to stay in that business: mothproof, fireproof, easily cleanable rugs and draperies; modern furniture of extraordinary attractiveness; new fabrics, new types of floor and wall coverings (including plastic panels). All will be immensely interesting to the promotion-minded.

Looking toward the profitable development of these tremendous postwar markets, manufacturers have for some time been setting their houses in order. This is especially notable at the executive "level," where good men are

quietly being hired to fill gaps, and where sales talent is being redirected from any number of temporary war jobs back to the merchandising side of the building.

Plans for factory reconversion are so far along that the layouts are drawn, the tools ordered, and orders for materials all ready to telegraph the moment the starter fires the gun.

At the same time, production cost experts are studying every detail of the proposed operation to see how manufacturing costs can be reduced, particularly with regard to making labor more productive. They know that both labor and materials will cost more. The problem is to utilize new materials wherever savings are possible, and to get the most out of new machine tools and new manufacturing techniques. No matter how successful these efforts may be, higher prices at retail seem inevitable.

### SALES EXECUTIVES FACE MANY NEW PROBLEMS

Across the hall, sales executives are figuring out ways and means of cutting distribution costs. They are formulating definite sales policies to meet the challenge of new competition, as well as the challenge of the tremendous market opportunities. They are also planning sales training courses for millions of returned service men.

These sales executives are trying to determine now how many men will be needed, in addition to those now on the job and who will return after the war, to put over the planned sales program. They are laying plans for recruiting and teaching that additional personnel.

The market analysts are studying shifts in population, changes in buying habits, shifts in income-bracket groups, and are attempting to guess what competitors—both prewar and newcomers—will be doing.

Production executives are taking stock of their suppliers, their subcontractors, and are making decisions as to whether or not they will stick with prewar suppliers or pass some of the increased business along to other bidders.

All along the line, finance, purchasing, labor relations, public relations, advertising, and accounting executives are burning the midnight oil—adding these labors to their already terrific wartime job burdens. They'll be ready when the whistle blows.

**LETTERS****Veteran Dealer Asks Questions on Postwar Distribution Policy**Lansdowne & Moody  
Houston, TexasEditor,  
Air Conditioning &  
Refrigeration News

Enclosed you will find a copy of letter which we have written General Electric.

We would like for you to publish it in your early edition.

G. U. LANSDOWNE,  
Partner  
Lansdowne & Moody  
Houston, TexasH. L. Andrews, Vice President  
General Electric Co.  
Bridgeport, Conn.

Dear Sir:

You no doubt are making your plans for after the war and we are writing you to know what your plans are.

We, too, are getting ready for postwar business.

Our location has been a G-E store for 17 years. We have just remodeled our building; new signs and everything necessary for the selling of a general line of electrical appliances.

It now becomes necessary for us to know just what the factories are going to do to take care of their old dealers.

We would like for you to give us an answer to the following questions:

1—Will it be your policy to promote merchandise to old G-E dealers only, until such time as these old dealers can not take your entire output, especially major appliances, refrigerators, washers, ranges, ironers, and dishwashers?

2—Do you contemplate selling to national chain stores? If answer is yes, how soon do you expect to add their new accounts and will it be regular brand or special brand?

3—If you do sell chain accounts, will the price to old established G-E dealers be the same as given chain accounts?

4—Will the discount be the same?

5—Will the sales promotion and service be the same?

6—Do you think the G-E factory can supply the demand to old dealers for two years after you get into production?

For your information, it has cost us about \$500 a month to keep our doors open to service G-E merchandise we have sold in the past years and we are sure there are many old G-E dealers in the same fix we are in, just hanging on expecting to regain these losses after appliances are available again.

Would appreciate an immediate answer.

A copy of this letter is being mailed to AIR CONDITIONING &amp; REFRIGERATION NEWS.

G. U. LANSDOWNE

**DISTRICT MANAGER**

Nationally known appliance manufacturer with an exclusive line in its field is now building a post-war national selling organization. If you have sales ability, good appearance, pleasing personality, and are capable of earning up to \$15,000 per year—here is an opportunity to break into a real paying position. Write giving age, experience, references, and when available. Applications will be held in strict confidence. Address Box 1589, Air Conditioning &amp; Refrigeration News.

CORDLEY & HAYES  
452 Fourth Ave., New York 16  
Manufacturers of Water Coolers For 55 Years**How Readers Vote on the New Form of the Bulletin Issue**Modern Appliance Co.  
San Mateo, Calif.

Editor:

May we take this opportunity to commend you for your new Bulletin Edition.

We find this new form very convenient as it is easily read and reminds us very much of the Kiplinger Service Washington Letters to which we subscribe.

We read with interest of the possibility of the lifting of WPB restrictions in regard to the manufacture of civilian goods and sincerely hope that this will mean the resumption of the manufacture of refrigerators. At least the outlook is a little

brighter than it has been for some time.

J. WALLACE

\* \* \*  
Refrigeration Equipment  
Manufacturers Association  
Pittsburgh, Pa.

Editor:

I have just had opportunity of reading over your new-style News Bulletin. It seems to me that you are giving in very brief and concise form information which should be of interest to every member of the industry. In fact, I think this is going to be exceedingly well received.

R. KENNEDY HANSON,  
Executive SecretaryPower City Radio Co.  
224 S. Main Ave.  
Sioux Falls, S. D.

Editor:

I would like to offer congratulations for your latest News Bulletin, issued June 12. We especially like this type of service and look forward to receiving future copies of this publication.

WM. B. MCKENZIE

\* \* \*  
The American Society of  
Refrigerating Engineers  
50 West 40th St.  
New York, N. Y.

Editor:

I have just received my first copy of the news letter type of bulletin edition and I want to say that I think it is tops.

ALFRED CHADBURN,  
Assistant SecretaryWestinghouse Electric & Mfg. Co.  
Springfield 2, Mass.

Editor:

I have just read through the Bulletin edition of REFRIGERATION NEWS and I think it is fine.

It is sort of a Kiplinger edition with everything boiled down in a very interesting and newsy style. I am very sure that it will be well received in the industry.

H. F. HILDRETH, Manager,  
Refrigeration Specialties Dept.\* \* \*  
Morton Show Case Co.  
Dayton 2, Ohio

Editor:

Permit us please to comment on your Bulletin Edition of June 12. This type of Bulletin is excellent for quick reading and has a lot of "meat" in it.

E. G. SANDERS

**A-P MODEL 73-RJ**  
SOLENOID REFRIGERANT VALVE

This small, compact solenoid is popular with both manufacturers and service engineers alike, because of its unusual features in design, simple construction, positive, quiet, "trouble-free" operation, and easy inspection.

Adaptable to most commercial refrigeration and portable air conditioning applications, A-P Model 73-RJ is capable of operating at pressure differential of 180 lbs. p. s. i. "Wrap-Seal" coils, water and frost-proof, are "over-powered" for ample lifting power even during

reduced voltage and heavy load periods. It can be easily and quickly disassembled for inspection and cleaning without removing from the line. Maximum capacity: Liquid line, 7.4 tons Freon at 6 lb. drop; Suction line,  $\frac{1}{2}$  ton Freon at 2 lbs.

**AUTOMATIC PRODUCTS COMPANY**

2450 North Thirty-Second Street • Milwaukee 10, Wisconsin  
Export Dept. — 13 East 40th Street, New York 16, N. Y.

# DEPENDABLE

## REFRIGERANT VALVES

Stocked and Sold by Progressive Refrigeration Jobbers Everywhere —  
Recommended and Installed by Leading Refrigeration Service Engineers.

## Suspension of Dealer In Vermont Eased By WPB

MIDDLEBURY, Vt.—The suspension order issued by the War Production Board against Cartmell's Sales & Service for alleged violations of Limitation Orders L-79, L-38, and L-126, has been amended upon complaint of Robert J. Cartmell, owner of the refrigeration and farm machinery sales firm, that the order worked "undue hardship" upon him.

Under terms of the revised order Cartmell's is permitted to complete installation of two locker plants, one for Chester Cooperative Freeze Locker, Inc., of Chester, Vt., and one for Frozen Food Lockers, Inc., Hanover, N. H.

Term of the suspension order, however, has been extended two months. Originally to be in effect from April 25 to Aug. 25, the suspension now runs until Oct. 25, according to the amendment.

## Minneapolis Firm To Sell Insulation

MINNEAPOLIS, Minn.—Insulation Engineering Co., managed by Marvin L. Fergestad, has recently been organized here to distribute in the northwest area low temperature insulation and allied materials, including Balsam-Wool fiber, cork, asphalts, vapor-proof paper, asbestos wall board, cold storage doors, etc. The firm plans to specialize in locker plant construction, but will not handle refrigeration equipment.

### Strouse Heads A.S.H.V.E. In Western New York

BUFFALO, N. Y.—At a recent meeting here, Sherman W. Strouse was elected president of the Western New York Chapter of the American Society of Heating & Ventilating Engineers.

Other officers elected were F. A. Moselle, first vice president; H. Seelbach, Jr., second vice president; B. C. Candee, treasurer, and George E. Adema, secretary.

**DOLE**  
VACUUM PLATE  
COOLING and  
FREEZING UNITS  
CHICAGO

### NOW! COOLERS FOR WAR PLANTS



Now they can be sold! Day and Night glass filler coolers for industrial cafeterias; bubbler coolers for war plants.

**COOLER DIVISION**  
**DAY & NIGHT MFG. CO.**  
MONROVIA, CALIFORNIA  
FACTORY REPRESENTATIVES  
NEW YORK CHICAGO  
A.C. Homeyer, 682 Bldwy. • Marc Shantz, 565 Wash. Blvd.  
ST. LOUIS DECATUR, GA.  
R.H. Spangler, 3331 Market St. • J.E. Parker, 228 2nd St.

## Australia Producing Units For 'Needy' Civilians

UNLEY, South Australia—Limited numbers of domestic refrigerators are being manufactured to meet essential civilian needs, according to E. A. Travers, managing director of Coldstream Refrigerators Limited, who has announced the new name of the company formerly known as Refrigerators Proprietary Limited.

Extensive use of "Coldstream" refrigeration units by Australian and Allied fighting forces throughout the Southwest Pacific theater is also reported by Mr. Travers.

## R. F. Broadbent Leaves Georgia Power Post

ATLANTA, Ga.—Richard F. Broadbent, associated with Georgia Power Co. for 14 years as small appliance sales promoter, manager of the Atlanta and Decatur stores, and senior customer service representative, has joined the Coca-Cola Co.

## Coast Dealer Forms Commercial Outlet

SAN MATEO, Calif.—Modern Appliance Co., household appliance and commercial refrigeration dealership here, has established a commercial refrigeration distributorship with a permanent display in the Western Furniture Market in San Francisco. The firm will specialize in reach-in units for stores and restaurants and will handle a complete line of frozen food cabinets when they become available.

## Armed Refrigerated Trucks Carry Food to the Front

LONDON, England—American invasion troops are assured of eating fresh foods through the Army's use of armed 10-ton refrigerated tractor-trailer trucks. The cab of each truck mounts an anti-aircraft gun, and crew members are armed with bazookas and other weapons, permitting the trucks to approach and enter combat zones.

## Simons Establishes Own Jobbership

WEST HARTFORD, Conn.—Joseph Simons, formerly with Merchant & Evans Co. and Marsden & Wasserman, Hartford, Conn. jobber, is managing his own refrigeration jobbing establishment at 26 Ballard Dr. here, with a warehouse and store at 271 Sheldon St., Hartford. The firm is covering central Connecticut.

Associated with Mr. Simons is Stanley N. Baldwin, who had been with Bauer & Co., Frigidaire service outlet, for six years following service with Frigidaire Boston branch.

## Karen Fladoes Named Kelvinator Economist

DETROIT—Karen Fladoes, formerly in charge of home economics for the People's Gas Light & Coke Co. of Chicago, has joined Nash-Kelvinator Corp. here in a similar capacity.

## Detrola Seeks Detroit Television Station

DETROIT—Permission to construct a commercial television broadcasting station to serve the Detroit and Windsor, Ont., areas within a 30-mile radius is being sought by International Detrola Corp. here from the Federal Communication Commission.

Net profit of \$643,744 or \$1.31 a share after provision for federal taxes on income and excess profits but before renegotiation for the six months ended April 30, 1944, also reports C. Russell Feldmann, Detrola president. These figures include four-month operations of the Detrola Radio and Electronics Division, which was merged Dec. 31 last year.

During the six-month period sales gained \$3,460,000 or 23% over the corresponding period last year, according to Mr. Feldmann. Sales by Detrola's machine tool plants fell off, but were more than offset by the big jump in radio sales: from \$1,920,000 in the 1943 period to \$12,796,433 in the 1944 half-year.

 **OMETHING**

refreshing drinks. For a G-E electric range that cooks quickly and flamelessly without heating up the kitchen. For a G-E washer that turns out snow-white clothes without scrubbing or boiling.

Yes, you can be sure your customers are glad that you sold them General Electric appliances.

### Worth writing about!

How do we know your customers are satisfied? Well, literally hundreds of General Electric appliance owners have taken



## Postwar Kitchen Designers Are Warned To Provide Space For Home Freezer

### 'Architectural Forum' Study Says It May Affect Kitchen Space Layout Much as Refrigerator Did

DETROIT — Home freezer sales after the war may not reach the heights that some predict, but a great number will certainly be sold, so the home builder will "find himself in an advantageous spot" if he designs his kitchen or utility space for freezers and frozen food storage units, believes the real estate editor of the *Detroit News*, metropolitan daily newspaper, following a study made by *Architectural Forum*.

"Quick-freezing food at home is by no means as speculative a postwar technological dream as plastic houses and glass ovens," states the *Forum*. "Before the war, home freezers were already established in many a farm home. With rationing, the demand for home freezing zoomed. Old ice

cream cabinets worth \$25 as scrap were revamped into home freezers and sold for as much as \$800.

"The refrigerator industry is fully aware of the fact that the present demand for home freezers may well be artificially hiked up by wartime food shortages," continues the *Forum*. "Nevertheless, the hardest heads among them are convinced that there will be a big postwar market for home freezers."

Prime prospects for home freezers after the war are the 1,600,000 patrons of some 5,000 locker plants in this country, and already refrigerator manufacturers are franchising locker plant operators as sales agents for home freezers, according to the *Forum*.

"Some refrigerator men are predicting a postwar volume of as many as 1,000,000 home freezers a year, which would come to some \$200,000,000 at prewar prices," says the *Forum* article.

#### PROBLEM IN USING SPACE

"The introduction of the freezer into the home is bound to have as significant an impact on kitchen and utility space design as the refrigerator had in its day. For the apartment house dweller, the industry is talking of a combination refrigerator and freezer—a small unit which might conceivably fit into an odd corner of the small urban kitchen.

"Most of the freezers produced prior to the war were of the chest type, opening at the top. If this design continues to predominate, urban freezers might well be considered another unit to be built into the

general work counter of the small well planned kitchen.

#### CALLED 'SPACE-WASTERS'

"Most existent kitchens, however, small and large, are space-wasters of a high order. Thus the introduction of still another standard unit might well force either a more efficient reorganization of their space, or a complete redesigning job. As for the brand new postwar kitchen, it is certain that foresighted builders and architects will plan it with an eye toward the logical housing of the house freezer."

The two-temperature household refrigerator designed to meet both ordinary refrigeration needs and needs of food freezing and frozen food storage will probably have the biggest immediate postwar boom, believes the *Forum*.

"The Deepfreeze division of Motor Products Corp., which plans to make 150,000 home freezers a year after the war, is already servicing Chicago North Shore residents with French-fried potatoes, soup, chicken à la king, and other dishes prepared by a local night club," states the *Forum*.

"Deepfreeze's inventor, Willard L. Morrison, foresees the development of a food-distribution system whereby large quantities and varieties of food cooked and frozen at central stations can be distributed from house to house. He is sure the day will come when housewives will be able to carry on for weeks without cooking anything," says the *Forum* article.

### Retailers' Committee Seeks a Simplified Price Regulation

WASHINGTON, D. C.—A task committee representing retailers has been selected by 14 trade associations to advise the Office of Price Administration in development of a simplified price regulation to apply to almost all retail stores except food outlets, it was announced by OPA.

Committee members include: Charles J. Michaels, representing the American National Retail Jewelers Association; A. Q. Smith, Limited Price Variety Stores Association; F. J. Griffith, National Association of Chain Drug Stores; Morris Myers, National Association of Retail Clothiers and Furnishers; J. W. Dargavel, National Association of Retail Drugists; Rivers Peterson, National Retail Hardware Association.

Owen W. Metzger, National Shoe Retailers Association; J. Jefferson Miller, American Retail Federation; Harold M. Lane, Institute of Distribution; G. Irving Baily, Central Council of American Retail Federation; M. I. Behrens, Jr., Retail Credit Institute; William Bonema, Mail Order Association; G. L. Smith, National Council of Shoe Chains; Clarence Haverty, Retail Furniture Association; Irving Fox National Retail Dry Goods Association; Harold Teel, representing unorganized small retailers.

### FOOD MUST BE CONSERVED

Refrigeration today is performing a vital service by guarding and preserving for future use, priceless food which might otherwise be wasted. Write for literature.

GENERAL REFRIGERATION DIVISION



TUNE IN: "The G-E All-Girl Orchestra," Sunday 10 P. M., E. W. T., NBC.  
"The World Today" news, every weekday, 6:45 P. M., E. W. T., CBS.



Air conditioning and refrigeration are essential to much of America's war production. That means that the belts so important to such equipment must be rugged, long-lived, and efficient.

Gilmer Belts are real sales getters in this field, and dealers who stock them are bound to do a tidy service business. Don't miss this chance while it's really hot. Get hold of your Gilmer jobber today.

L. H. GILMER COMPANY  
Tacony, Philadelphia 35, Pa.

## Speedy Service Shop on Wheels Helps Repairman Beat Manpower Shortage

BIRMINGHAM, Ala.—A virtual refrigeration service shop on wheels is enabling W. V. Peek of W. V. Peek & Co., Birmingham, to serve more customers and make more money. He has a truck with a specially designed body which enables him to go "fully equipped on every trip." He carries about \$800 worth of parts and materials in the truck including copper tubing and fittings, belts, door gaskets, compressor bodies, motors, gas, oil, and the like.

"This is a time when most of us refrigeration service men have more work than we can do," says Mr. Peek. "Anything that will speed up service enables us to serve more customers and make more money."

"I find one of the greatest helps is to have a complete stock of mate-

rials along with me on the job. This saves the time lost in running back and forth to the office. I cover quite a territory, ranging up to 100 miles and I, of course, could not afford to make many extra trips.

"Customers demand speed today more than ever before. That is because as a rule they are serving more people and their refrigeration facilities are having to carry a bigger load. A breakdown gums up the works immediately. My objective is to give 'sudden service' to the many groceries, restaurants, bakeries, and other food handling establishments which are on my list."

"I route my calls as far as possible and then out in the field I call the office frequently to pick up other calls. By having my truck loaded with parts and materials I can usually handle these additional calls without coming back to the office."

Mr. Peek's truck has a number of bins and shelves on each side. These were built by Mr. Peek himself and vary in size according to the items to be stored in them. He even has a bin above the front seat in which he keeps a record of his service calls and the work done. On the floor of the truck he carries such items as motors and compressor bodies.

Mr. Peek keeps in the truck a stock of reconditioned motors and compressors. Thus if a customer's outfit gives away, he can get him back in service almost immediately

with a replacement unit. He rebuilds and repairs compressors himself and overhauls some of his motors but most of the latter are sent out to a motor shop.

He is dedicated to the job of keeping his customers' refrigeration equipment running and to that end he is on call day and night. In fact he said he couldn't be on call to any greater extent if he were in the army, and if that were true he might at least get a furlough. When his customers get in trouble, they holler loudly and they want him to come at once.

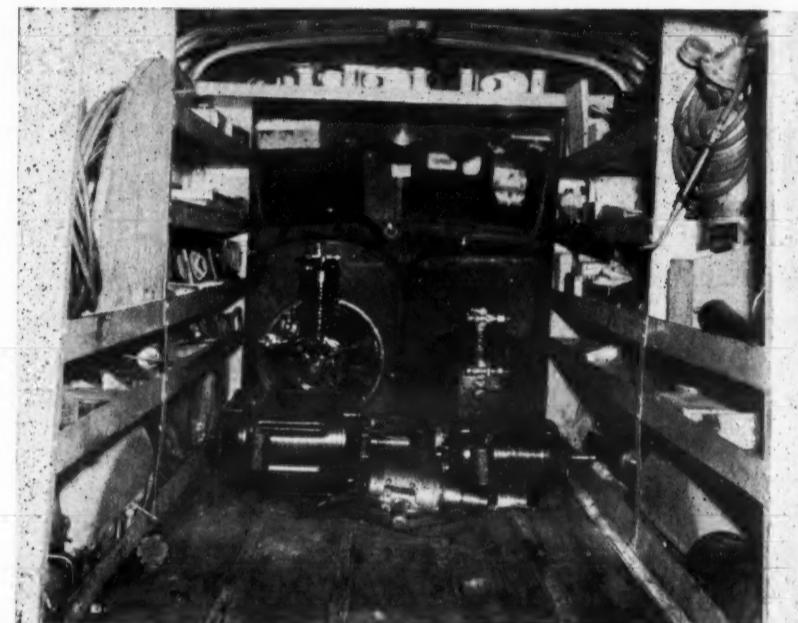
"When I make an installation of a refrigeration unit for a customer I tell him that if he would keep it polished and lubricated like he does his car he would have no service troubles for a long time," commented Mr. Peek. "But he won't do that. I install it for him under the counter or in a back room, turn on the switch and then the customer forgets about it until trouble develops. Then he is prone to blame the equipment. Maybe it is only a drive belt all gummed up with dirt and oil, so that it is slipping, but the owner can't see that it is his fault."

Mr. Peek recently bought the two-story building at 112 S. 22nd St., Birmingham, into which he moved his business. He proposes after the war to sell new equipment including both display cases and refrigerating units.

## Truck Load of Repair Parts Holds Shut-down Periods to a Minimum



By keeping his truck loaded with about \$800 worth of refrigeration equipment, W. V. Peek, shown above with the truck, is able to repair most commercial refrigeration system breakdowns on the spot. Careful pre-selection of the equipment usually avoids the need to return to the shop to pick up a part for some job, permitting Mr. Peek to serve more customers.



These special bins and shelves along the sides of the truck were designed and built by Mr. Peek himself to accommodate the parts and equipment he carries all the time so he can repair out-of-order equipment without delay.

**Superior  
PRESSURE CUP VALVES  
THE Inside STORY**

The skirt of the pressure responsive cup—acting like the piston in an automobile tire pump—automatically forms a positive pressure seal, with the valve stem in any position. Eliminates packing "drag" and leaks prevalent with conventional packed valves.

No. 94

... and that's not the only feature of these SUPERIOR Pressure Cup Valves!

- 1 Seal-cap gasket assures pressure-tight joint.
- 2 Pressure responsive cup forms positive seal.
- 3 Metal-to-metal backseat when valve is fully opened.
- 4 Wrench flats for easy removal of internal assembly.
- 5 Spring assures positive opening under pressure.
- 6 Generous openings assure against pressure drop.

Available in sizes through 2 1/8" sweat and 2" F.P.T.

If you haven't a copy of Catalog R2, request one today.

**DAVISON'S  
SILICA GEL SETS  
THE STANDARD FOR  
DRYING AGENT  
PERFORMANCE—No. 3**

**WILL NOT  
Cake  
NOR  
Powder**

PROCESSED ESPECIALLY FOR THE DEHYDRATION OF REFRIGERANTS

Davison's Silica Gel is a clean, durable material that will neither cake, powder, nor channel. Keeps its scientifically-determined particle size indefinitely under all conditions within the cartridge, permitting perfect diffusion of the liquid. Maximum pore surface area is exposed to the refrigerant at all times.

Davison's Silica Gel has maximum capacity for moisture, oil will not affect it . . . it acts instantly . . . it removes acids that cause corrosion . . . it will not attack metals or alloys. Effective on Freon, Methyl Chloride, Sulphur Dioxide, etc., etc.

**SUPERIOR**

VALVE & FITTINGS COMPANY  
PITTSBURGH 26, PENNSYLVANIA

OFFICES IN PRINCIPAL CITIES • WEST COAST STOCK: LOS ANGELES (15) • JOBBERS EVERYWHERE

**THE DAVISON CHEMICAL CORPORATION**

Progress through Chemistry

BALTIMORE-3, MD.

Canadian exclusive sales agents for DAVISON'S SILICA GEL  
CANADIAN INDUSTRIES LIMITED, General Chemicals Division

## Central New York A.S.R.E. Elects New Officers



S. E. Hirsch (left) of Brunner poses with these newly elected officers of the Central New York A.S.R.E. section: Secretary-Treasurer Joseph W. Stevens, Vice Chairman Mark E. Mooney, Chairman William L. Lynch, and Retiring Chairman R. DeWitt Pike

## Try This One On Your Telephone

MANSFIELD, Ohio—Stressing the importance today of the telephone in dealing with refrigeration service calls, Westinghouse Electric & Mfg. Co. has published in its "Service Beacon" a check list for proper handling of the telephone to promote customer goodwill.

## Here's One Way...

1. LET IT RING. That always puts her in her place. It tells her you are busy.
2. KEEP HER GUESSING. When you pick up that phone say, "Hello." Let her ask to find out if she has the right place.
3. SHOW YOUR GROUCH. Growl into that phone when you answer. Show her you are a crab. Act indifferent and hard to get.
4. MUMBLE AT HER. You can do it better if you have a pipe, cigar or cigarette in your mouth. Then get your mouth about three feet away from the mouth piece.
5. CALL HER MISSUS OR MADAM. It's just another dame with a beef. You can get her name or address later.
6. SHOUT AT HER. That lets her know how important you are and scares her into silence.
7. TELL HER WHAT'S WHAT. Tell her what's the matter. Let her understand that you know, better than she does.
8. CONFUSE HER. Ask questions she can't possibly answer. And act as if she should know the answer. Remember she is asking you to do something.
9. HANG UP ON HER. Bang that receiver in her ear. Beat her to the punch. Let her know that you are through talking whether she is or not.

## But This Is Better

1. ANSWER IT IMMEDIATELY. Show her you are on the job, ready to serve.
2. GIVE YOUR NAME. Answer by saying, "Home Electric Company, Mr. Home speaking." Let her know she has the right number.
3. BE PLEASANT. Put some enthusiasm into your voice. Let her know you are glad to take the call and want to be of service.
4. SPEAK DISTINCTLY. Speak directly into the mouth piece and try to enunciate clearly. Don't talk too fast or use technical terms.
5. CALL HER BY NAME. Get her name and address at the start and write it down. Then call her by name during the conversation.
6. KEEP YOUR VOICE LOW. She can hear a normal tone of voice. And her confidence is built up.
7. LET HER TELL ALL. Don't break into her story. Let her get it off her chest. She thinks she knows.
8. ASK QUESTIONS COURTEOUSLY. Ask questions only when necessary and then courteously in the manner of a man asking for information.
9. LET HER HANG UP FIRST. That's courtesy. Besides she may tell you something in that last word that will help you on the job. And thank her for calling.

K-15

MAGNETIC  
PILOTED  
PISTON  
VALVE

GENERAL CONTROL'S K-15, two-wire, current failure, is a high pressure valve handling large capacities with minimum pressure drop. Main valve held open electrically minimizes pressure loss. Packless, available normally closed. Operates on a wide variety of fluids and gases.



Write for Catalog 52.

GENERAL CONTROLS  
801 ALLEN AVENUE  
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CONTROLS

Branches: Boston - New York - Philadelphia  
Cleveland - Detroit - Chicago - Dallas  
Denver - San Francisco

Wartime Manufacturers of Electro-Magnetic and Temperature Controls for Aircraft  
- Peacetime Producers of Automatic Pressure, Temperature, and Flow Controls.

Fires In Air Systems  
Will Be Eliminated

ST. PAUL—"Air conditioning system fires, like those of the automobile in its early days when the car which didn't burn up was usually the one which won the road race, will be largely eliminated when the causes are fully understood," declared a paper prepared by John Neale, chief engineer of Underwriters' Laboratories, Inc., Chicago, and read at a recent session of the Northwest Fire School in the Public Safety Building.

"Loss of life and property has resulted from air conditioning system fires but can be prevented in the modern air conditioning system," the speaker said, "by proper design and maintenance and the use of such safeguards as fire-resistant air filters tested by Underwriters' Laboratories, non-combustible ducts, fire-resistant duct linings and insulation, automatic fire shutters in the duct systems to prevent the spread of fire, and electric eye smoke detectors coupled with alarm systems and electrically connected to shut down the system when fire breaks out.

"Smoke, as well as fire, introduces a panic hazard," Neale said. "This is particularly serious," he pointed out, "as air conditioning systems are usually installed in public buildings where crowds are present."

Screening of the intake openings, frequent cleaning of the ducts and proper location of the intakes well above the floor level will help prevent accumulations of all manner of combustible trash and lint in the ducts, Neale advised.

## 300 YEARS OF EXPERIENCE

Do you realize how long it takes to 'graduate' from the 'School of Experience'? Of course you never stop learning but the man who will learn and benefit from the experience of others who have travelled the same road before, is bound to be successful. The staff of instructors who moulded our course of training represent an aggregate of 300 years of experience. All the ability and knowledge gained by these men over this long period of time are available to you. In just a few months you can get the 'know-how' that would otherwise take years to obtain from field work alone. Such complete and comprehensive knowledge will put money in your pocket. The same exclusive training system used by the U. S. Army is offered to you in either Resident courses or Home Study combined with actual shop work. Write today for free booklet.

## COMMERCIAL TRADES INSTITUTE

School of Refrigeration and Air Conditioning

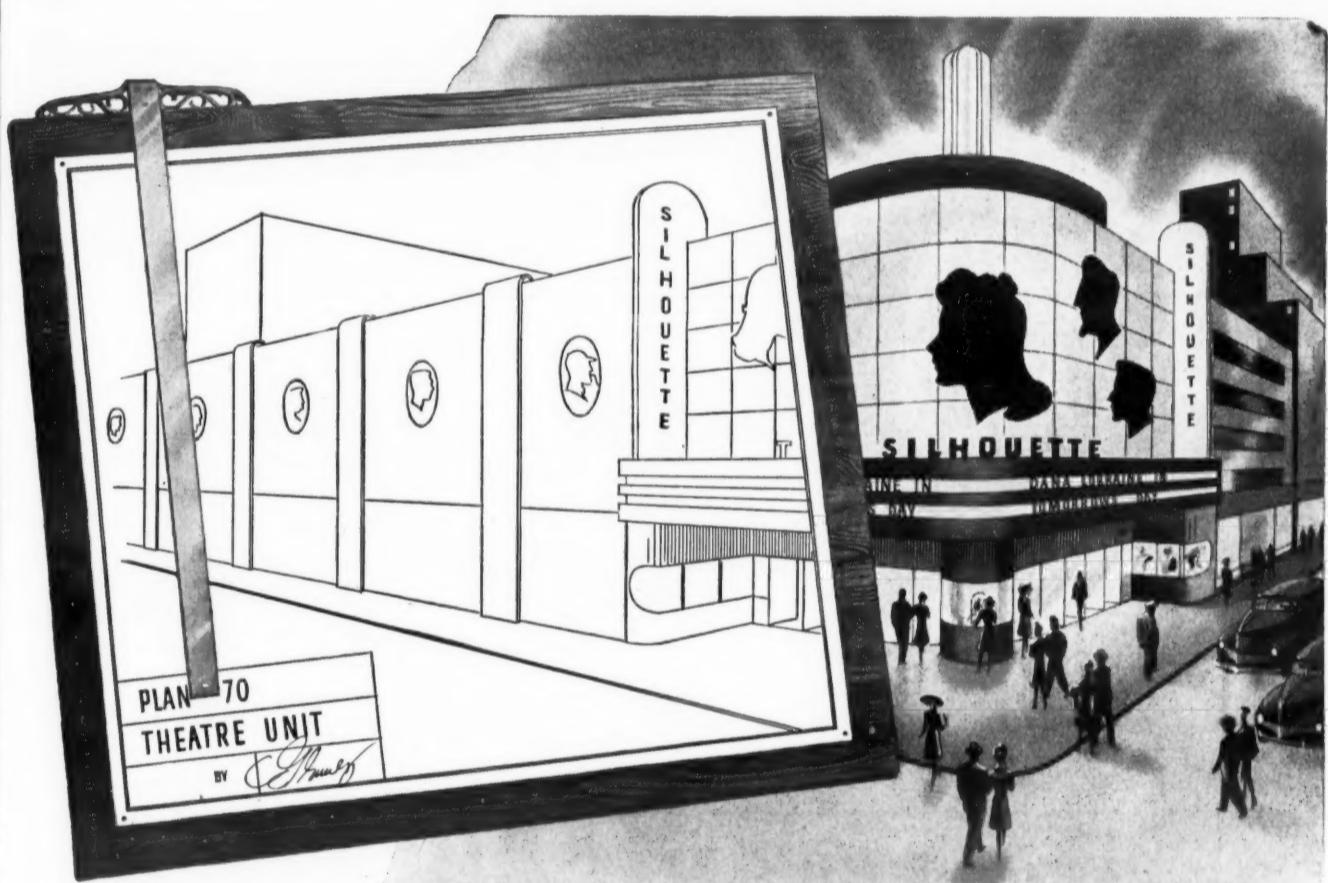
221 N. LaSalle St.  
Chicago, Ill.200 S. 20th St.  
Birmingham, Ala.300 E. Grove St.  
Bloomington, Ill.

## WHEN PEACE COMES

•KOCH•

WILL AGAIN PRODUCE COMMERCIAL  
REFRIGERATOR EQUIPMENT FOR CIVILIAN USENOW SOME SELF-CONTAINED REACH-IN REFRIGERATORS  
ARE AVAILABLE FOR THOSE WHO CAN  
QUALIFY • • • • •Koch REFRIGERATORS  
NORTH KANSAS CITY • • • MO.

Write — Wire — Phone

YOUR SHARE  
of Postwar Theatre Air Conditioning  
is on the Drawing Boards Today

Theatre owners know that postwar theatres without air conditioning will be as unpopular as silent films—and as little patronized. That's why their plans just naturally include Modern Air Conditioning.

Across the nation, architects, engineers and air conditioning contractors are hard at work on such plans, and the experienced contractors are important members of the "teams" which are helping to build America's commercial future. Undoubtedly you are at work on your share of this great program.

Westinghouse Air Conditioning Contractors find it practical to serve on these building teams. For the line of Westinghouse equipment is well established, backed, as it is, by years of pioneering research and engineering experience.

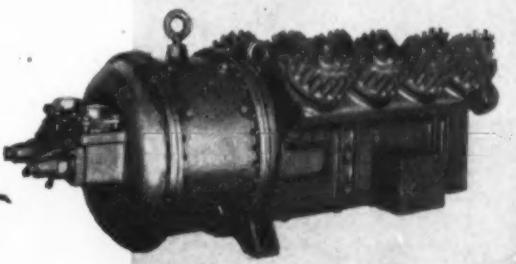
For essential war uses, Westinghouse Air Conditioning and Industrial Refrigeration Equipment is available today.

For executives, architects and engineers now planning postwar building and modernization, dependable data and competent application engineering assistance are ready.

Phone your nearest Westinghouse office, or write on your letterhead to Westinghouse Electric Elevator Company, 150 Pacific Avenue, Jersey City 4, New Jersey.

HERMETICALLY-SEALED  
FOR DEPENDABILITY

Westinghouse pioneered the Hermetically-Sealed Compressor. Hermetically-sealed means light weight - small size - low maintenance and operating costs - high efficiency - long life.



Westinghouse  
PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE  
Air Conditioning

Westinghouse presents John Charles Thomas Sunday 2:30 E. W. T., N. B. C.  
"Top of the Evening" Mon. Wed. Fri. 10:15 E. W. T., Blue Net.



## Gov't Officials Say They Allot Materials Faster Than Producers Can Supply Them

(Continued from Page 18, Column 5)

The Facilities Bureau denied a number of applications recommended by us, and upon consultation with WFA, suggested a number of strict rules for the approval of this type of application. We obtained some modifications of these regulations for 1944, and applications are now being approved under a set of rules.

Effective Feb. 1, 1944, the handling of priority applications up to \$25,000 in value was decentralized to the field offices of WPB in accordance with the board's general decentralization policy. In addition, effective April 19, 1944, applications of \$25,000 up to \$100,000 were decentralized to the regional offices of the WPB.

Our 1944 allocation for refrigeration equipment was broken down by quarters with larger allocations for the first and second quarters to permit installation of as much equipment as possible for use this year.

Due to the popularity and demand for frozen food lockers, applicants requested an advance of third and fourth quarter allocations for use in the second quarter; WPB felt that since refrigeration manufacturers were so heavily engaged in the manufacture of refrigeration for landing craft, other Naval Ship Board installations, the Maritime Commission, and Overseas Service base, it could not authorize the advance of third and fourth quarter allocations.

A recent report indicates the delivery time required for some items of refrigeration equipment is as much as five months from the date an order is placed. Therefore, despite a heavy demand for frozen food lockers, it seems futile to us to ask the WPB to increase our 1944 program.

### Expect 700 Plants Out Of 2,000 Applications

Statement by J. W. Millard, Director, Office of Materials and Facilities, War Food Administration.

Mr. Millard. There have been 450 locker plants built, or rather 450 have been approved since Jan. 1, and 350 built in the last six months of last year.

Sen. Aiken. Can you tell us as to how that compares with the need and with the demand?

Mr. Millard. The demand figures would have to be qualified a little bit by saying that we must remember that the applications have been discouraged, and applicants have been discouraged from putting in applications.

However, I might say that they are running at about the rate of 2,000 a year. From our bank of materials we will be able to satisfy about 700 out of that 2,000.

If the lid were taken off at all, that demand would probably jump to 3,000 or from 3,000 to 3,500 a year.

Mr. Hill. In these plants there are about 1,700,000 compartments.

Sen. Aiken. Approximately how much food would be stored?

Mr. Hill. On a yearly basis, with the average turnover, it would amount to about 850,000,000 pounds of food.

Sen. Wiley. We know that the cooler situation is tight. What is the real situation as to whether or not we can get more material in order to alleviate that condition?

Mr. Hill. The material situation is likewise tight. The facilities for manufacturing it are very tight. It has taken a great deal of refrigeration on our troop ships to take care of the food that you necessarily must carry on troop ships which includes carrying the boys on the landing craft. That takes a great deal of refrigeration for those facilities.

Sen. Wiley. You read in the magazines the statement that we are over the hump on the maximum amount of material that is being manufactured for the war. Where does this apply to this over-plus over the war material? Is there not a sufficient amount of material beyond that with which to manufacture these installations?

Mr. Hill. I doubt very much if it applies to any particular phase of the war effort, any particular time. In other words, it may have the day it was made, but conditions change so frequently that no statement as to conditions can for very long be correct.

Sen. Wiley. Is there any opportunity to get any verification, or do we have to accept that statement here, that the maximum amount that they could get this year would be 700?

Mr. Hill. This is just for the moment, and situations can and do change in a very few days. We are getting along rather well on the material set-up that we have now. However, we were getting along splendidly on the materials that we had until we went into the program of heavy artillery. That takes a great deal of the steel and iron and other facilities in the way of material and men. That situation may have to be taken care of.

Mr. Millard. We are claimants before the War Production Board, for millions of tons of critical material, controlled material. This is just one small part of it.

And the requirements for farm machinery, for metal containers, for all food processing equipment, they are all assembled from the many divisions of the WFA, in our office, and argued along with the claims, with, of course, the claims of the Army and Navy and the Air Corps, the Office of Defense Transportation, all of that, before the WPB Requirements Committee.

The programs are reviewed at quarterly intervals. It is usually apparent well before the beginning of any quarter just about how far you can go on any given program without colliding with some other war program.

So, we are in rather close agreement with WPB on the size of the allotment that can be provided for any particular quarter.

The critical item in the locker program is and has been the compressors and motors.

These two items have entered very widely into all phases of the war program.

Naturally, the war program comes first. So, we have been hesitant to program up to express need when it is apparent from, let us say, the figure on these currently approved projects are five months back in getting what equipment, that is, the various types of machinery, that has been allotted to them, and that they can not supply them any more rapidly than they are.

We have found a high degree of cooperation in the War Production Board and the War Food Administration, and the inclination all the way through has been to put this through just as rapidly as they feel it can be put through.

### Motors and Compressors Are Stumbling Blocks

Sen. Wiley. What you are saying is that you have allocated material five months faster than the manufacturers can produce it and provide it?

Mr. Millard. That is correct.

Sen. Wherry. Do you mean difficulty in the way of motors or compressors or in steel? I understand you to say that the prime reason for not

manufacturing the lockers, taken as a unit, was because you could not get motors and compressor units?

Mr. Millard. That is true.

Sen. Wherry. Is that because of the steel shortage?

Mr. Millard. Yes.

Mr. Robinson. That is correct.

Mr. Millard. The quantity of steel required in this program is very small.

Sen. Wherry. I just came in as Mr. Hill was testifying. I understand him to say that the shortage of metal was holding this up.

Mr. Millard. Not exactly.

Mr. Robinson. More largely the capacity to fabricate.

Mr. Hill. I said that up to recently we had plenty of steel. We had a space in these when we had the com-

(Continued on Page 20, Column 3)

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$$U = \frac{1}{\frac{1}{f_i} + \frac{L}{k} + \frac{1}{f_o}}$$

$$q = \frac{A(t_1 - t_4)}{\frac{x_1}{k_{m1}} + \frac{x_2}{k_{m2}} + \frac{x_3}{k_{m3}}} \quad \text{B.t.u. per hr.}$$

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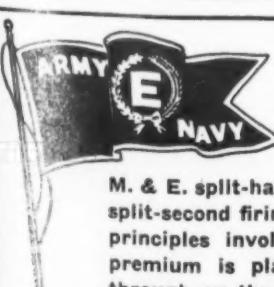
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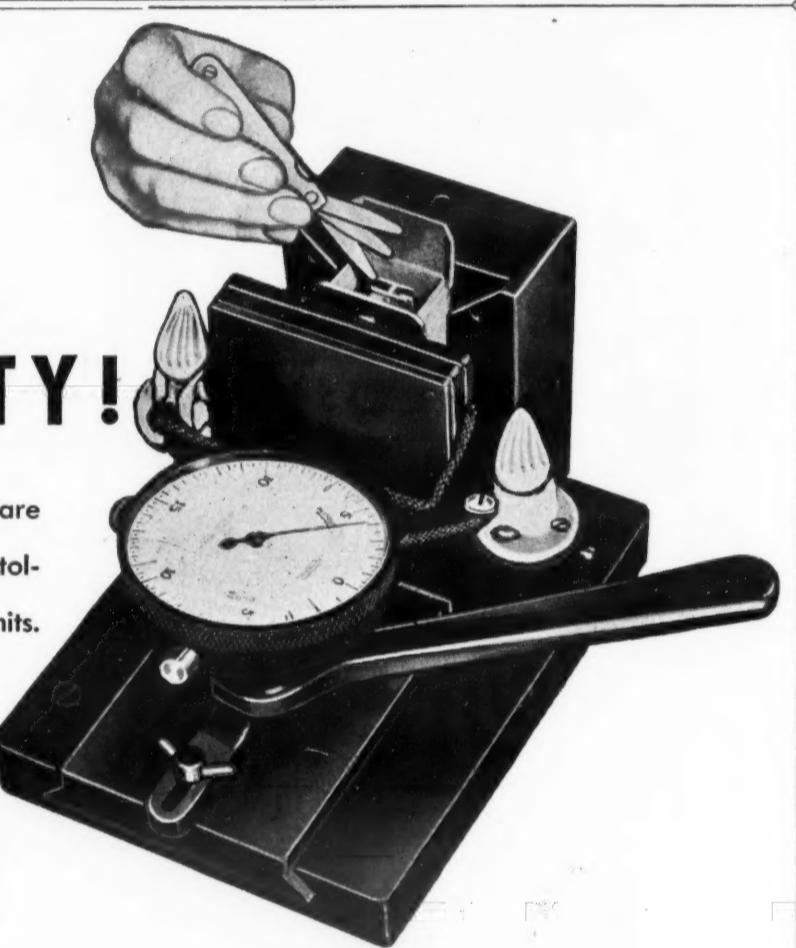
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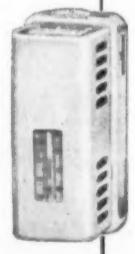
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## Senator Calls For All Means To Be Employed To Stop Food Wastage

(Continued from Page 19, Column 5)  
ponent steel in sufficient quantity.

Under this new, heavy artillery program, why, that has again become very tight.

Sen. Wherry. You are not confronted with this shortage, that is, compressors and motors?

Mr. Hill. Oh yes, we are confronted with a shortage of compressors and motors very substantially.

Sen. Tobey. Has "Freon" gas been and is "Freon" gas presently used in the plants? If so, has that had anything to do with the shortage of the plants?

Mr. Robinson. I do not think that "Freon" has been used at any time on all of these, most all of these are ammonia plants. Most of them have ammonia gas.

Sen. Wherry. I have been working on this thing through some of the members of industry, for several weeks.

It grew out of a discussion of the pork situation where we felt if we could get some lockers out on the farms it would help alleviate those conditions, and the fact that its use meant that these things could be utilized by people in the small towns to great advantage. Frankly, it would help the situation considerably as far as meat was concerned. This thing was gone into very thoroughly.

At that time, which was April 1, we had a letter from a number of members of industry which sets forth and states that they are advised by various manufacturing companies that

a sufficient quantity of raw materials are available for the early fabrication and erection of refrigeration, compressors, motors, food lockers, and other component parts of frozen food locker plants.

Certainly, there is no form of food storage more economical in its use of this critical material, or capable of service to a great number of the nation's food producers.

With that in view, I thought possibly there might be some chance of arriving at some way of moving up the allotment of raw materials for the production of lockers in your third and fourth quarters and probably in the first and second.

Probably, if it is a matter of a basis of material being allotted during the year as a whole, it is much more important to make these allotments in the first two quarters than in the last two quarters.

The reason why that is so is, if you have vegetables and fruits, now is the time, next fall and next winter will not do, they will not be any good then.

### Time to Save Food Is Now—Sen. Wherry

If we can get the lockers out where we have the manpower in the smaller communities where they can, to a certain extent, process the foods, the fruits, vegetables, and meats and get them into a storage and keep them there, why, it would certainly go a long way towards helping avoid the wastage of food that has been experienced by the overcrowded facilities.

I do want to go on record that I did not want to do anything in the world to stop this war.

We will all agree with Mr. Hill that if it is a question of refrigeration for us or for the boys, of course, there is no other answer, there is no other answer desired—it should go to the boys.

However, if it is a question of an allotment of materials, and they come along in the last two quarters of the year, and I say if it is a very small thing—and I think this program, taking the over-all viewpoint, is rather small—if there is any way in the world to move your allotments up into the first and second quarters, it should be done.

We do not want to waste this food. After all, food is one of the very necessary things to help to win this war.

We made quite an investigation in connection with the matter of hogs. We found that there were 70,000 hogs carried over from Saturday to Monday, unsold in the market.

Anything we can do to stop the feeding of hogs unnecessarily, anything that we can do in the way of that effort we ought to put it forth now. Do it now, gentlemen, rather than in August. Now is the important time on these lockers.

### Cites Saving It Would Mean Over Tin Cans

Sen. Aiken. I have before me a statement which I consider entirely liable, and which reads as follows:

To the extent that these plants are used to preserve foods which otherwise would be produced in metal cans that for the saving in steel and tin a complete 500-family unit could be built and equipped with less metal than would be required to can and feed—that is, can the food that such a unit could process over any one year.

Is that statement approximately correct?

Mr. Millard. That is correct. We have had that example given to us before, and demonstrated, Senator.

Sen. Aiken. In other words, it takes less metal to store the same amount of food in a locker than would be required to store it in tin cans for one year. Of course, the locker plant is used over and over again, whereas the tin can is wasted.

Mr. Hill. Sen. Aiken, I see your point there. I will ask Mr. Millard if he checked that statement. It does not sound right. Of course, there is very little steel in a locker plant.

Mr. Millard. Yes, we have presented that in our program, and it was demonstrated to be true.

Sen. Aiken. As I understand it, the 350 plants which were authorized in the last six months of last year are expected to store about 70 million pounds, annually, of food.

Mr. Hill. About that.

Senator Aiken. And the 450 which have been authorized this year would store about 90 million pounds, or 160 million pounds could be stored and will be stored in this space which was not available a year ago today?

Sen. Aiken. And it is your opinion that a great deal of the food stored in these plants is food which otherwise might not have been processed by any method at all, or perhaps a part of it having been lost entirely?

Mr. Hill. A great deal of it would have been wasted, as I said before, because we do not have sufficient cans. We have had to abandon cans almost altogether, and we are canning now in glass.

Sen. Aiken. Do you think that we have reached the point in food stockpiling and production where we can afford to waste any more?

Mr. Hill. I do not think you can ever afford to waste food, because it takes manpower to produce it and that would be wasting manpower.

Sen. Aiken. Of course, there is a saving in manpower in the utilization of the community locker plant, or the use of local labor in processing which otherwise would not be available? Is that not true?

Mr. Hill. That is right.

Sen. Aiken. Also a saving in transportation?

Mr. Hill. It saves transportation, saves manpower, saves food.

(More of the Senate Committee Testimony Will Appear In a Future Issue.)

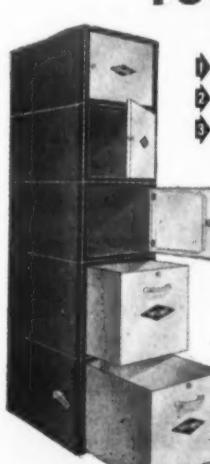
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## Northern Indiana Group Meets at Jobber's Picnic

GARY, Ind.—Enthusiastic response of refrigeration service men and their families—nearly 200 turned out—has prompted Engineering Specialty Co., Inc., parts jobber here, to schedule a "repeat" next year on the picnic held at Indiana Dunes state park on Lake Michigan on a recent Sunday afternoon.

Foot races for all ages, a baseball game, prizes, including a 45-pound hog, and refreshments furnished by Engineering Specialty were highlights of the picnic, reports E. M. Kirtland, president of the firm.

Jim Tosaw of Electric Refrigerator Co. of South Bend ran first in the married men's race, while Doc Rendel of Gary, who is crowding 70, came in third. The team captained by Vic Vesel of Vesel Refrigeration Service won the baseball game.

In addition to service men, several manufacturers' representatives attended the picnic, including Al Fine of Kerotest, I. A. Guestzaff of Dayton Rubber, and R. Lyon of Brunner.

Prizes for the picnic were donated by Kerotest, Stepan Chemical Co., Lapham Hickey Co., Rotary Seal, Dayton Rubber, Brunner, Mueller, Imperial Brass, Swift Mfg. Co., Innes, Speden & Co., Radiator Specialty, Reitz Sales, Weatherhead, and Allis-Chalmers.

## FTC Issues Directive On School's Advertising

WASHINGTON, D. C.—The Federal Trade Commission has directed Edward D. Miller, trading as National Technical Institute, Virginia, Ill., to discontinue misrepresentation of correspondence courses offered, among which is a study of air conditioning.

The commission alleged that representations regarding the teaching faculty, scholarships, selection of students, and job allocation were false and misleading.

Miller was also ordered to discontinue use of the term "Institute" as part of his trade name.

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## Nahin Directs Sales For Milwaukee Firm

MILWAUKEE—Wallace L. Nahin, former district manager of Vilter Mfg. Co.'s St. Louis office, has been appointed general sales manager of the company and will make his headquarters here.

Mr. Nahin started with Vilter following his graduation from Marquette university as a mechanical engineer. He served successively as estimator, application engineer, and field engineer, before going to the St. Louis office in 1940.

He is a member of the American Society of Refrigerating Engineers, the Milwaukee Association of Commerce, and Tau Beta Pi, national honorary engineering fraternity.

In another recently announced appointment, Randolph A. Klokner, for 17 years sales engineer in charge of the Milwaukee and Wisconsin district of Vilter Mfg. Co. of Milwaukee, has been appointed Chicago district manager, announces E. B. Tilton, vice president and general manager.

In his new position Mr. Klokner will direct both sales and construction activities of the company for the Chicago territory. He is a member of the American Society of Refrigerating Engineers.

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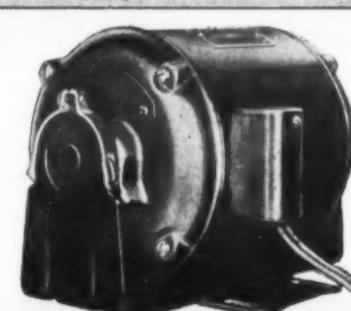
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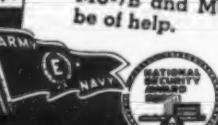
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## Parts of DR Controls For G-E Units

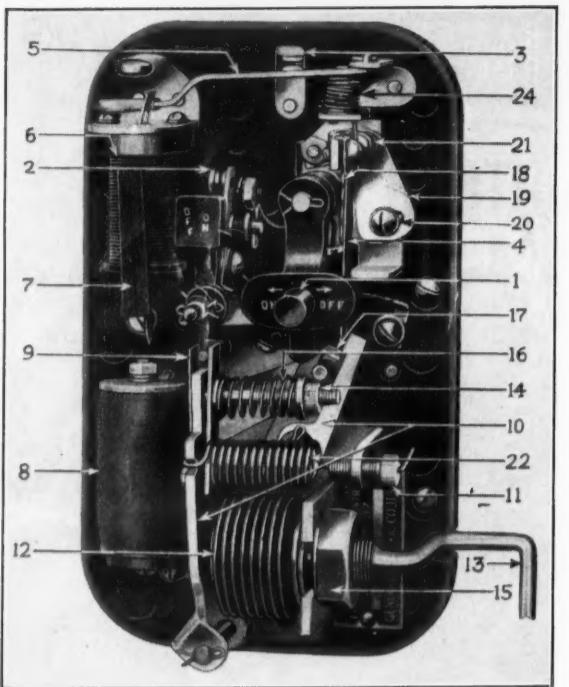


Fig. 41—Type A control for DR machines. 1—Main switch, 2—Main contacts, 3—Starting contacts, 4—Overload cut-out, 5—Starting relay contact arm, 6—Starting relay coil, 7—Starting relay armature, 8—Starting resistor, 9—Leaf spring, 10—Latch mechanism, 11—Temperature adjustment, 12—Metallic bellows, 13—Bellows tube to evaporator, 14—Temperature range adjustment screw, 15—Clamp nut on bellows, 16—Temperature range adjustment spring, 17—Inner latch arm, 18—Overload heater, 19—Overload adjustment plate, 20—Overload adjusting screw, 21—Overload adjusting screw, 22—Temperature adjustment spring, 24—Starting arm spring.

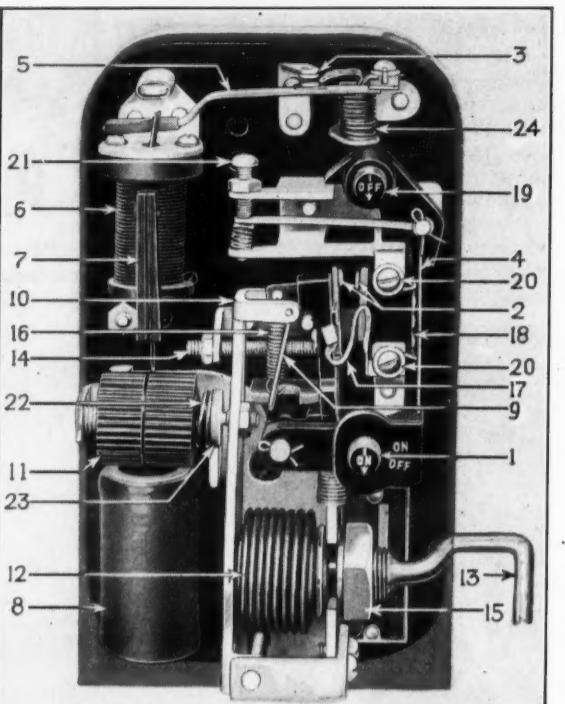


Fig. 42—Type C control for DR machines. 1—Main switch "on," 2—Main contacts, 3—Starting contacts, 4—Overload cut-out, 5—Starting relay contact arm, 6—Starting relay coil, 7—Starting relay armature, 8—Starting resistor, 9—Bridle, 10—Lever for automatic control, 11—Temperature adjustment drum, 12—Metallic bellows, 13—Bellows tube to evaporator, 14—Temperature range adjustment screw, 15—Clamp nut on bellows, 16—Bridle spring, 17—Flexible lead, 18—Overload heater, 19—Main switch "off," 20—Terminal screws, 21—Overload adjusting screws, 22—Temperature adjustment spring, 23—Temperature adjustment nut, 24—Starting arm spring.



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### Replacement Procedure

#### Control Parts Replacement

##### DR MACHINES

The method of replacing various

parts of CR-1050 controls on DR machines is obvious upon inspection. There are four different designs, A, C, D, and E, and the various parts of each design can be identified in the accompanying pictures.

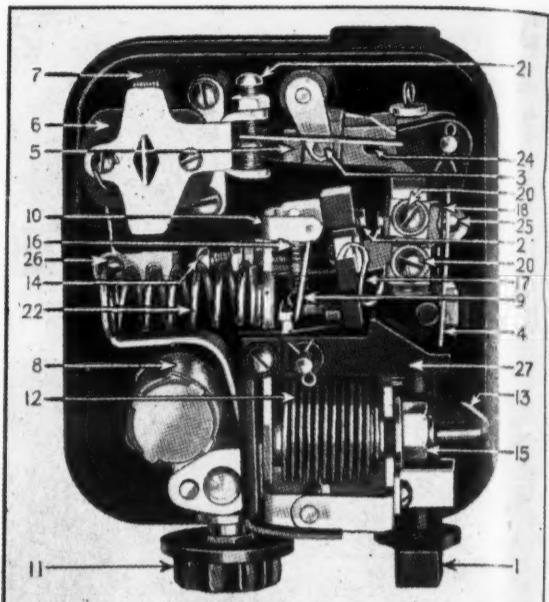


Fig. 43—Type D control for DR machines.

- 1 Main Switch.
- 2 Main Contacts.
- 3 Starting Contacts.
- 4 Overload Cut-out.
- 5 Starting Relay Contact Arm.
- 6 Starting Relay Coil.
- 7 Starting Relay Armature.
- 8 Starting Resistor.
- 9 Bridle.
- 10 Lever for Automatic Control.
- 11 Temperature Adjusting Knob.
- 12 Metallic Bellows.
- 13 Bellows Tube to Evaporator.
- 14 Temperature Range Adjustment Screw.
- 15 Clamp Nut on Bellows.
- 16 Bridle Spring for Contact Arm.
- 17 Flexible Lead.
- 18 Overload Heater.
- 19 Main switch "off."
- 20 Overload Heater Screws.
- 21 Overload Adjusting Screw.
- 22 Temperature Adjustment Spring.
- 23 Contact Screw for Removing Control, also Common Motor Lead Connection.
- 24 Starting Arm Spring.
- 25 Contact Screw for Removing Control, also Running Motor Lead Connection.
- 26 Contact Screw for Removing Control, also Running Motor Lead Connection.
- 27 Latch and Indicating Arm.

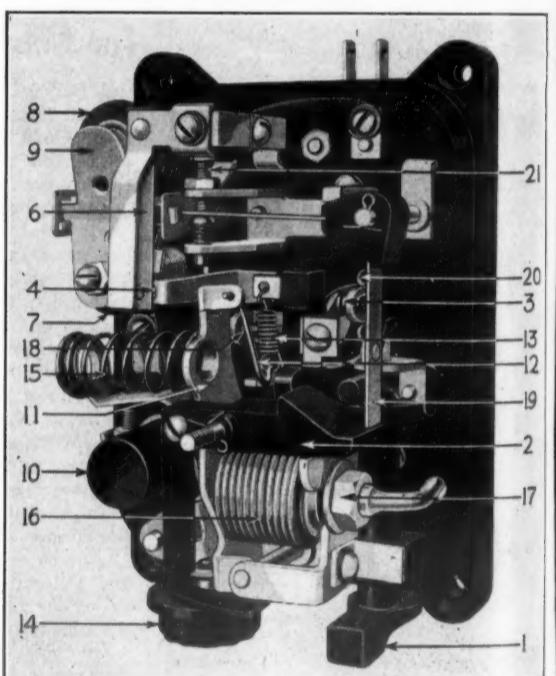


Fig. 44—Type E control for DR machines.

- 1 Main Switch.
- 2 Latch and Indicating Arm.
- 3 Main Contacts.
- 4 Starting Contacts.
- 5 Starting Contact Spring.
- 6 Starting Relay Series Coil.
- 7 Starting Relay Shunt Coil.
- 8 Starting Relay Armature.
- 9 Starting Resistor.
- 10 Lever for Automatic Control.
- 11 Bridle.
- 12 Bridle Spring for Contact Arm.
- 13 Temperature Adjusting Knob.
- 14 Temperature Adjustment Spring.
- 15 Metallic Bellows.
- 16 Clamp Nut on Bellows.
- 17 Temperature Range Adjusting Screw.
- 18 Overload Cutout.
- 19 Overload Heater.
- 20 Overload Adjusting Screw.

## Chief Refrigeration Engineer

Successful 33-year-old manufacturing organization has opening for competent young engineer to head design and application engineering on postwar farm freezers. Ideal midwestern location, excellent living and working conditions, and A1 possibilities for the future.

Our employees know of this ad so write fully and in confidence giving experience, salary requirements and other pertinent data.

Box 1583, Air Conditioning & Refrigeration News

# Inside Dope

By George F. Taubeneck

(Concluded from Page 1, Column 1)

## West Coast Wants To Stay Big

Insiders say that one of the chief reasons Gov. Earl Warren of California refused the Republican nomination for Vice President is that he wants to lead the West Coast fight to retain its war-born industrial strength and increased working population.

Nearly everybody knows how fabulously West Coast industries have grown during the war. Most of us have also assumed that when the government no longer was a gantuan customer for aircraft, ships, steel, aluminum, magnesium, and wood products, that the great industrial plants out there would become vast empty spaces.

But we hear rumblings of a plan the West Coasters have to make a great fight for retention of their present place in the industrial (as well as natural) sun.

Executives out there say that it's much more than personal ambition—it's self-preservation.

What they mean is this: the hundreds of thousands of war workers who have migrated thence like it too well to leave. If they have no jobs, the mass unemployment could lead to nasty trouble.

They see their only hope in politics. That means some sort of subsidy, probably taking the form of the sale of government owned producing facilities out there at prices only a fraction of their original cost.

This won't make manufacturers in the East feel happy, but the West Coast factotums say they don't give a damn. The eleven western states have 22 votes in the Senate. There will be several million organized workers out there with a vote potential which would make any Administration jump.

They also point out that bargain sales of government-owned plants would be better than having them stand idle, and far better than having millions of restive workers unemployed.

Nobody knows what will come of all this, but it does seem certain that for one reason or another the West Coast will become a far bigger market than it has ever been before.

## Gas Appliance Prospects

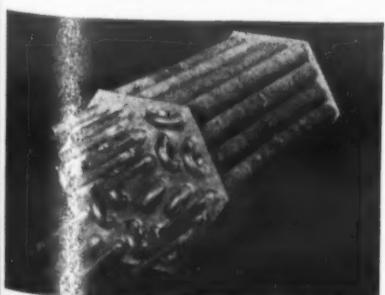
Replacement needs alone will demand 8,000,000 gas ranges, 2,000,000 gas refrigerators, and 5,000,000 gas water heaters, reports the Postwar Planning Committee of the American Gas Association.

This crowd is planning to go to town on gas air conditioning, too, and may have some other surprises up the sleeve.

The bottled gas (LP) appliance people are also ambitious.

New manufacturers can be expected in these fields, and the "old" ones aren't asleep at the switch, either. As a matter of fact, postwar planning was advanced in this field a year after Pearl Harbor!

## ROME-CONDENSER ★ Jointless Type ★



Rome Water Cooled Condenser Coils insure trouble-free condensing equipment. Used by leading compressor manufacturers.

## ROME - TURNER RADIATOR COMPANY

222 CANAL ST.  
ROME, N. Y.

we had to sell off quickly—perhaps to use the money to re-establish homes elsewhere—would we have to send for an OPA agent to put a ceiling price on every chair and table, pot and pan in the house?

"And suppose we have to forego the opportunity of re-establishing ourselves in a new place?

"Or would it be more to the national interest to use gasoline and rubber tires to ship refrigerators and gas ranges and such items from one city to another?"

## Who Pays the Taxes

From 1939 to 1943 the number of persons filing Federal income tax returns increased from 7.6 million to approximately 44 million, not including those who pay only Victory Tax. Over the same period, Federal income taxes increased from less than one billion dollars annually to an estimated \$12 billion. The Victory Tax for 1943 is expected to yield another \$2.3 billion.

"And that reminds me of an OPA case up near Stamford, Conn., which represents the same general type of the substitution of pushing around for common sense.

"A family sold their home and moved elsewhere, and they had to get rid of some articles, including a refrigerator. They advertised the items for sale in a local newspaper.

"One item was a General Electric refrigerator, in good condition, purchased in 1930 for \$450. They had

between sixty and seventy telephone calls concerning this refrigerator and sold it to a man for, as they tell me, \$150.

"The OPA heard of the sale and went after them on the ground that the ceiling price on such a refrigerator is \$19.50. But they could not afford to sell it for \$19.50 and the man who bought it needed a refrigerator and was willing to pay.

"Now the seller is in trouble and unless the buyer will accept a refund of \$130.50 the OPA will crack down on the seller.

"Precisely what sense does this make? Suppose you or I were to find ourselves forced by circumstances to get rid of our homes and

total national income for 1944 is estimated by the Treasury Department to reach \$157 billion.

**BRUNNER** helps this fighter  
...shoot snow!



Crash fires at airports are knocked out in seconds—when the Cardox Airport Fire Truck drives up with its tremendous mass discharge of cold carbon dioxide "snow" and vapor. "Freezing out" fire is made possible through the Cardox method of providing uniformly cold carbon dioxide. For example, the 3 tons of liquid CO<sub>2</sub> on the Cardox Airport Fire Truck, in a large, single pressure vessel are held at 0° F. by a Brunner low temperature condensing unit.

Their use in connection with this most modern method of fire-fighting is typical of the versatility of Brunner condensing units. Aside from such special applications, their use in industrial refrigeration is speeding production and cutting costs.

Some of the industrial uses by which Brunner condensing units are enabling manufacturers to secure the lower temperatures desired include: shrinking metals for expansion fits... retarding aging or hardening...keeping coolant and cooling oils at uniform temperature...cooling of welder electrode tips.

Plants are specifying Brunner units to assure dependability and trouble free performance. Special built-in construction advantages make Brunner units peculiarly adapted to stand up under today's accelerated and rigorous production.

We'll be glad to work out any refrigeration problem with you. Brunner Manufacturing Company, Utica 1, N.Y., U.S.A.

## AMCOIL FOOD CONDITIONER

### NEW COOLING-PLUS UNIT

### Adds High, Controlled Humidity

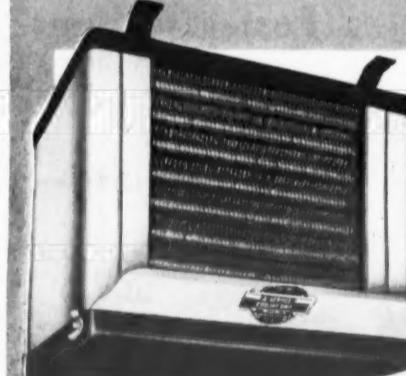
**Amcoil**  
Headliner  
Steps Up  
Your Sales



Here's something new, different—a practical combination of high, controlled humidities with cool temperatures in a good preserving unit with great commercial possibilities. The recently-announced Food Conditioner spearheads a line of Amcoil-engineered products designed and built to advance refrigeration standards and make sales history.

More than a unit cooler, it combines Cooling Temperatures of 35° to 40° F. and high, controlled humidities up to 85%. Built to be used in Walk-In Boxes. The double job done by this compact packaged refrigeration system preserves and saves foods without dehydration. It's engineered to protect stored fresh meats, fruits and vegetables, perishable foods, butter and cheese, eggs, flowers, bakers' and confectioners' products—and to retard dough.

THESE TWO COMPANION ITEMS ROUND OUT  
THE PICTURE OF OPPORTUNITY NOW



AMCOIL ALSERVICE OPEN-FACE COOLING UNIT, a standard type forced draft cooling unit. Modern streamline design and in attractive colors, grey and black, it produces temperatures down to 34° F.



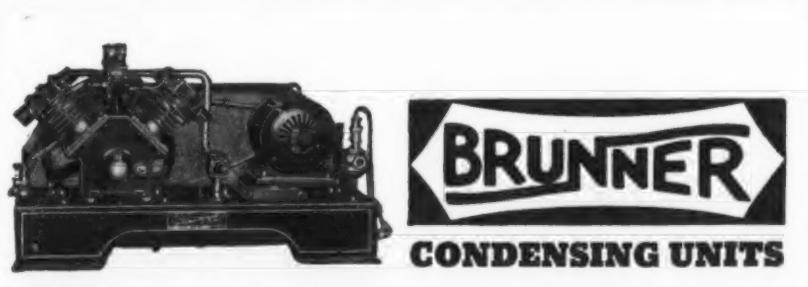
AMCOIL ALSERVICE DOWN DRAFT COOLING UNIT, a new type of cooling unit employing some new principles of refrigeration developed by Amcoil Engineers. Convertible to Food Conditioner unit by addition of parts if need for humidity control arises in the future. Temperatures down to 34° F.

As replacement equipment on rated orders of AA5 or better under L-38, these Amcoil units can be delivered now. WPB Task Committee figures indicate that 1944 sales of commercial refrigeration equipment for replacement will exceed \$100,000,000 in retail sales value. Get your share of this business with Amcoil-engineered units, embodying the combined technical skill and experience gained in the making of cabinets for testing war products under varying humidities and temperatures from -100° to +160° F.



Factory Representatives  
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ORDER NOW FOR IMMEDIATE SHIPMENT FROM YOUR LOCAL JOBBER OR DIRECT FROM US



**BRUNNER**  
CONDENSING UNITS



## Army Refrigeration Problems

By P. B. Reed

Manager, Refrigeration and Air Conditioning Division, Perfex Corp.

### The Evaporative Condenser

In a previous article it was brought out that the heat from the refrigerator plus the heat of compression passed into the water of a water-cooled condenser and thereby raised the temperature of the water. That is, advantage was taken of the principle of "sensible heat," for increase in the "sensible heat" in the water resulted from the addition of heat from the hot gas.

The cool water may have been taken from city mains, a well, or other source of cool water but in the smaller machines the warm water from the condenser is usually wasted into the drain, carrying the sensible heat along with it.

In localities in which the water rate is high, this becomes rather expensive, so in the larger installations the warm water is passed through a spray tower or a spray pond, where it is cooled by the evaporative cooling process and brought back to the condenser and used over again.

Evaporative cooling takes advantage of the latent heat of vaporization instead of sensible heat. It may

be considered as a method of air cooling for the water is used as a carrier to convey the heat and dissipate it into the air. If, as in an ordinary water-cooled condenser, the temperature rise is 30° F., one pound of water will carry away only 30 B.t.u.

In evaporating one pound of water, 970 B.t.u. are required to change the water to a vapor, so that in order for the water to take on the same 30 B.t.u., we need only evaporate 3.1% of a pound, or only about  $\frac{1}{4}$  of an ounce of water.

As a matter of economy it's not quite as easy as that, for there are other expenses to be considered such as the added investment in the additional equipment, and the cost of operating and maintaining the motors, fans, pump, and other parts of the cooling tower. To determine which is the cheaper method, all of these factors must be taken into consideration.

#### SPRAY TOWERS AND PONDS

A spray tower or spray pond is used simply to cool the water for

the condenser of the condensing unit and it is necessary to keep the condenser as a part of the condensing unit. In this connection it might be well to note, however, that the water is circulated through the condenser to and from the spray tower by a circulating pump which is usually of the centrifugal type that handles a large volume of water but which does not develop much pressure.

If the water-cooled condenser was originally designed for city water pressure, it will usually be found that the circulating pump will not pump a head sufficient to overcome the restrictive effect of the condenser; in which case it is necessary to reconnect the tubes or shells of a shell-and-tube condenser to a parallel connection instead of a series connection so as to reduce the restrictive effect and permit the passage of enough water to carry away the heat with a permissible temperature rise.

Due to the large amounts of cooling water used by air conditioning installations, the high temperature of available water, high cost of water, or the inadequacy of water mains or sewers, the evaporative condenser has been increasing in use and popularity in recent years and is being applied to small installations down to as small as 1 hp.

It is, in effect, a modified spray tower with the condenser of the unit placed within the cooling tower in such a manner that the hot gas is cooled by the evaporation of water sprayed on the condenser coil, and at the same time the water is cooled just as in a spray tower.

#### CYCLE OF OPERATION

A schematic diagram of a typical evaporative condenser is shown in Fig. 1. The hot gas from the compressor first passes through the condenser coils where it gives up its heat (from the refrigerator and from the heat of compression) to the water being sprayed over the coils. The fan draws air in at the bottom and expels it at the top. The heat from the hot gas passes first into the water and causes some of the water to evaporate into water vapor which passes out through the fan with the air.

Some small droplets of water (not water vapor) are picked up by the air and would be carried out by the fan. It would serve no useful purpose to lose the amount of water "entrained" in the air and would, in fact, tend to rust the discharge ducts, so a set of impingement plates forming a labyrinth are placed in the air stream just beyond the sprays.

Most of the entrained droplets are caught by these series of plates called Eliminators, and drop off and pass back down to the coil, and thence to the water sump tank in the bottom.

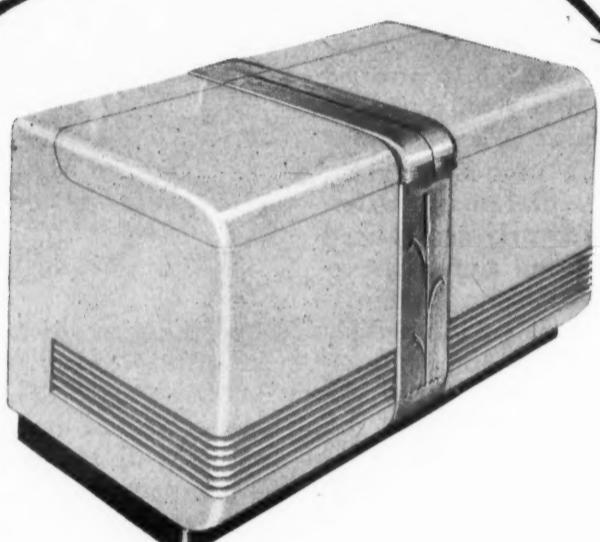
Some designs of evaporative condensers allow for a very small amount of water being thrown onto the condenser coil, only a little more in fact than will be evaporated; but the better designs provide for several times as much water being sprayed onto the coil as will be evaporated, the extra water serving to wash the coil and tending to keep it clean. Two gallons of water per minute per ton may be considered average good practice, as the rate of water circulated and sprayed on the condense coil.

The water that is not evaporated falls down into the water tank which acts as a sump or reservoir from which the circulating pump draws the water to supply the sprays. The water level in the tank is maintained by a float similar to a low-side float or water closet float.

As make-up water is needed due to loss of water by wastage, evaporation, and some entrained water getting by the eliminators, the float lets it in to the tank from a line from the city mains or other supply.

Since the evaporative condenser depends for its cooling ability upon the latent heat of vaporization of the water, the temperature of the make-up water does not greatly matter.

(Concluded on Page 25, Column 1)



In the  
"Post-War Plans"  
of many  
Farm Families--



### The BEN-HUR Farm Locker Plant

Talk to any farmer about a farm locker plant and his first comment will be, "wish we had it now." And he'll follow with the promise that food freezing and frozen storage is the FIRST thing he's going to add after the war.

For most farmers already know the benefits of owning a BEN-HUR FARM LOCKER PLANT . . . the advantages of freezing and storing farm-grown vegetables, meat, poultry for delicious meal variety weeks and months later . . . the economy and

savings in food costs . . . the satisfaction of preserving the finest of their own produce . . . the time saved in avoiding shopping trips to town.

This is evidence of your future market for new BEN-HUR FARM LOCKER PLANTS—a volume market ready just as soon as they can be produced.

Let us put your name on the list to receive complete data and sales information on BEN-HUR FARM LOCKER PLANTS, when this data can be released.

Today . . . back our fighting men with more war bonds



ARMY-NAVY "E"  
Awarded Ben-Hur  
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achievement in  
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Remember...

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• These dry expansion water coolers are designed especially to meet the increasing demand for cooled recirculated water in air conditioning systems of the indirect type. Shell and tube construction. They require but a small refrigerant charge. Thermostatic expansion valves simplify refrigerant control. Non-freeze. They are today supplying excellent service in hundreds of installations. A full range of capacities. Write for complete information and price list.

### ACME INDUSTRIES JACKSON, MICHIGAN

#### HI-PEAK WATER COOLERS

Where instantaneous high-peak delivery of cooled water is desired, Acme remote type water coolers assure ample reserve volume on demand at all times. Shell and coil construction, coils are properly sized to insure against excessive refrigerant pressure drop. Storage capacities: 12 to 168 Gal.—Write for Catalog No. 25.



#### ACME PRODUCTS

Write for Catalog on any item

Evaporative Condensers

Flooded Water Coolers

Forced Convection Units

Hi-Peak Water Coolers

Ammonia Condensers

Dry-Ex Water Coolers

Freon Condensers

Heat Interchangers

Heat Exchangers

Oil Separators

Pipe Coils



Refrigerants have gone to war — are high on the list of vital materials. Don't let hidden-leaks waste them.

**VISOLEAK** is composed of fine refrigerant oils colored and treated to penetrate every nook and cranny of the system, keeping a constant check for annoying, expensive hard-to-find leaks. If refrigerant can leak out, so can **VISOLEAK** and it will mark the leak with a dark red stain.

**VISOLEAK** is safe—safe with any refrigerant and effective with systems of all types. It is non-toxic, non-poisonous, non-corrosive and non-inflammable.

**VISOLEAK** is economical—

Wholesale Prices  
Save 10%  
on case lots

4 ounce bottle	• \$1.00	48 bottles
8 ounce bottle	• 1.75	24 bottles
1 pint bottle	• 3.00	24 bottles
1 quart bottle	• 5.00	12 bottles
1 gallon can	• 16.00	6 cans

See your jobber or write for complete information

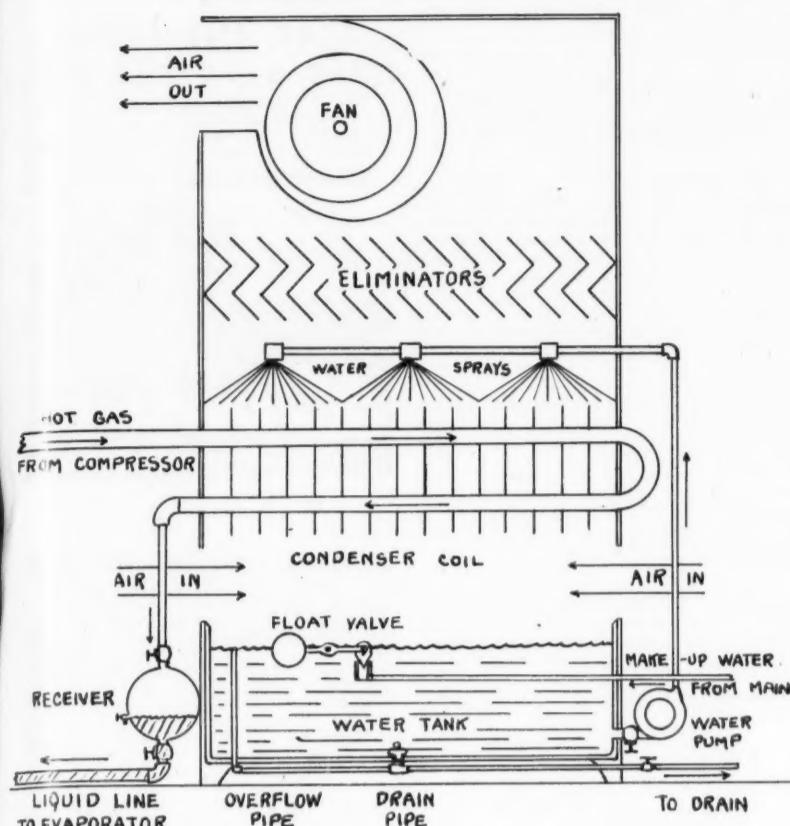
**WESTERN THERMAL EQUIPMENT COMPANY**  
3185 Angeles Vista Blvd. • Los Angeles 42, California

Please send me complete details about **VISOLEAK**.

Name \_\_\_\_\_

Address \_\_\_\_\_

Fig. 1. Schematic Diagram of Evaporative Condenser



## Factors In Operation of Evaporative Condensers

(Continued from Page 24, Column 5)

### CLEANLINESS OF WATER IMPORTANT

A plug should be provided in the bottom of the water tank so that it may be drained and cleaned occasionally. Dirt, mineral matter, trash, and other impurities in the water do not pass out with the air to any appreciable extent and they therefore gather in the tank and quickly foul it.

It is best to set the float to maintain the water level too high and thereby pass some water into the tank all the time. This allows a continuous flow out of the over-flow pipe and carries with it the impurities.

A good general rule (applying particularly to the smaller sizes of evaporative condensers up to 25 or 30 ton capacities) is to waste from 2 to 3 gallons of water per hour per ton of refrigeration.

### LOAD FIGURES

Since the latent heat of vaporization of water is 970 B.t.u. per pound, each pound of water evaporated in the evaporative condenser will absorb 970 B.t.u. from the hot gas in the condenser coil.

Under standard rating conditions, a one ton condensing unit absorbs 12,000 B.t.u. per hour from the refrigerator. In addition to this 12,000 B.t.u., which represents the load and the capacity of the condensing unit as a whole, there is an additional amount of heat, referred to as "heat of compression" that the condenser must handle, whether it be an air-cooled, water-cooled, or an evaporative condenser.

Assuming that this heat of compression amounts to about one-fourth of the load (see July 3, 1944, issue for more accurate factor), 3,000 additional B.t.u. would have to be handled by the condenser, or a total of 15,000 B.t.u. per ton of condensing unit capacity. Therefore a "one ton" condenser (to match a one ton condensing unit) must actually be able to dissipate heat at the rate of 1½ tons, or 15,000 B.t.u. per hour.

To absorb 15,000 B.t.u. per hour would require the evaporation of approximately 15½ pounds of water per hour ( $15,000 \div 970$ ) or almost 2 gallons per hour.

In mentioning the figure of 300 c.f.m. per ton, also the figures of 2 g.p.m. of water circulated per ton, and 2½ g.p.h. of water per ton for wastage, it is not the intention to set these up as design factors nor as standards, but simply as general data that the service engineer may use as guides if the evaporative condenser is not operating efficiently.

the wet-bulb temperature of the incoming air.

If the design is good and the coil surfaces are clean, the head pressure may run as low as that corresponding to a saturation temperature 20° above the wet-bulb temperature of the incoming air.

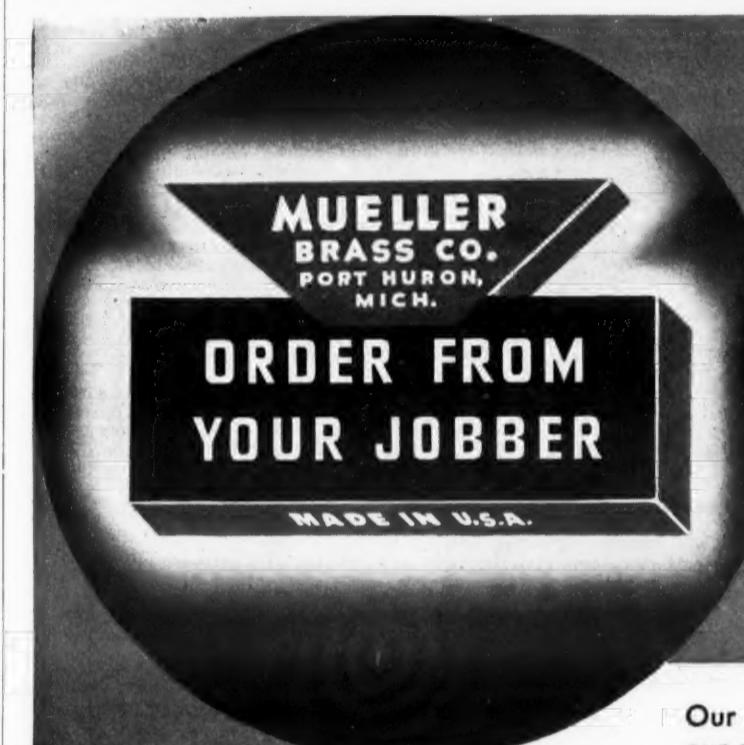
For example, if the wet-bulb temperature of the entering air is 60° F., the head pressure could be as low as about 85 p.s.i. (corresponding to a saturation temperature of 80° F.) for "Freon-12," or if the design were skimpy or the coil dirty or encrusted, the pump or fan inefficient, etc., the discharge pressure might run up to around 110 p.s.i. (corresponding to a saturation temperature of 95° F.) or even higher.

The following approximate discharge pressures may be expected, varying as shown, according to the suction pressure, the particular design of the evaporative condenser, and its condition (cleanliness of coil, fan and pump speeds, and efficiencies, etc.).

Wet-Bulb Temperature Of Air Entering Evaporative Condenser	Condensing Pressures p.s.i.			
	"Freon-12"		Methyl Chloride	
	From	To	From	To
60° F.	85	108	72	94
65° F.	90	117	79	102
70° F.	100	126	86	111
75° F.	108	136	94	120
80° F.	117	145	102	129

Since the discharge pressures obtained from an evaporative condenser depend on wet-bulb temperatures, the use of the evaporative condenser is particularly desirable in many regions of the south and southwest where the dry-bulb temperatures are high but the humidities are low (low wet-bulb temperatures). It is also true that in many of those areas the available condenser water is quite warm and sometimes the water rates are high.

(This is the first part of an article on "The Evaporative Condenser" by Mr. Reed. The second part will be published in the July 31 issue.)



YOUR  
JOBBER  
IS YOUR  
BUSINESS  
FRIEND

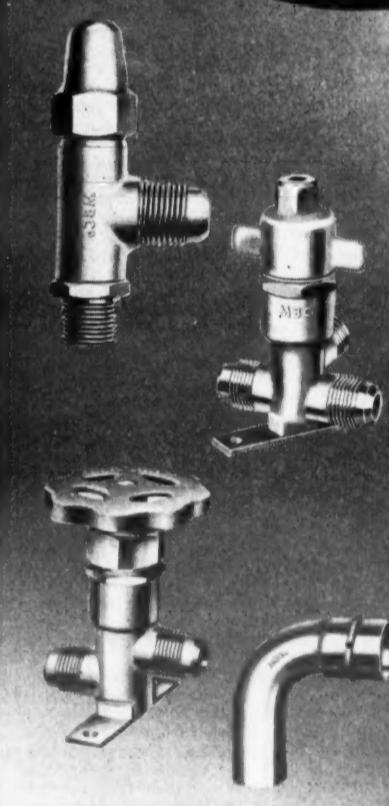
Our policy for many years has been to distribute our goods on a selective jobber plan. Our experience has shown us that this policy is a sound one. It achieves for us a nation-wide distribution at the lowest possible cost. This lower cost naturally benefits not only us but also the jobber, service man and contractor.

The jobber has a distinct and important service to perform in the distribution of goods. We believe that through the services he renders, the goods actually reach the ultimate buyer at a lower cost rather than a higher one, and that selling goods direct does not reduce the cost to the eventual consumer. As manufacturers we know that if we sold direct, we would require billing, accounting and shipping forces ten to twenty times greater than what we have at present. Our transportation charges would increase tremendously; our storage space would have to be greatly enlarged. These things and many more would necessarily reflect themselves in the cost of the product.

Our post-war distribution policy will be on the same basis as it has been for many years prior to the war—distributed on a selective jobber plan. We will sell only enough jobbers in a locality to assure complete coverage of territory and trade. All trade inquiries will be referred to the jobber.

We will carry a complete line and assume undivided responsibility for—line valves, compressor valves, receiver valves, driers, heat exchanger, liquid indicators, fittings, both flare and solder type, hard drawn solder sealed copper pipe, dehydrated tubing.

**MUELLER BRASS CO.**  
PORT HURON, MICHIGAN



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HOWELL ELECTRIC MOTORS COMPANY · HOWELL, MICH. · REPRESENTATIVES IN ALL PRINCIPAL CITIES

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# KOLD-HOLD PLATES

KOLD-HOLD MFG. CO.,  
LANSING, MICH., U.S.A.

## MANUFACTURERS ATTENTION.

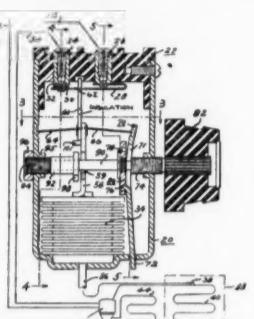
NOW IS THE TIME  
to establish  
YOUR SALES REPRESENTATION.  
YOUR PRODUCT—  
OUR ABILITY TO SELL—  
MAY BE THE ANSWER  
for both.

Will entertain correspondence for  
WISCONSIN MARKETS  
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## PATENTS

Weeks of June 23 & 30

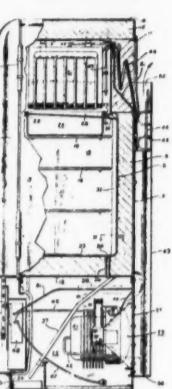
2,351,038. REFRIGERATING APPARATUS. Albert O. Grooms, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Feb. 5, 1941, Serial No. 377,529. 17 Claims. (Cl. 200—83.)



1. A control comprising an actuating means, toggle means connected to the actuating means, a control device operated by one of said means, and adjustment means for varying the movement of the

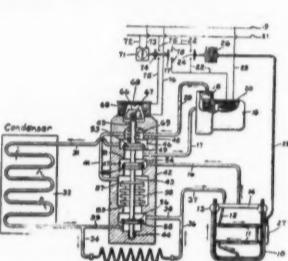
actuating means and the toggle means said adjustment means including means effective in one position to cause the movement of said toggle means to be confined to one side of the dead center position of the toggle means, and effective in another position to cause the limits of movement to extend to opposite sides of the dead center position of the toggle means.

2,351,139. REFRIGERATION APPARATUS. Graham S. McCloy, Springfield, Mass., assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application July 10, 1941, Serial No. 401,691. 4 Claims. (Cl. 62—103.)



1. Structure for removing condensate from a refrigerator having a food-storage chamber including a side wall, a cooling unit in the upper portion of said chamber, an open groove on the interior surface of said side wall extending downwardly from a point adjacent the cooling unit, means for conducting liquid condensate from said cooling unit to the groove at said point, and a drain communicating with the lower end of said groove, said groove extending in a substantially direct path along said side wall from said point to said drain, whereby condensate from said cooling unit flows downwardly in said groove to said drain.

2,351,140. REFRIGERATION APPARATUS. Graham S. McCloy, Springfield, Mass., assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Nov. 6, 1941, Serial No. 417,984. 5 Claims. (Cl. 62—115.)



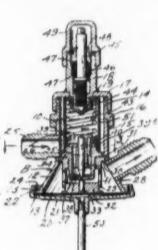
1. In a defrosting valve for a compressor-condenser-evaporator type refrigerating system in which a fixed orifice controls the flow of refrigerant to the evaporator, the combination of a hollow valve body having two annular, co-axial, and spaced-apart recesses in the interior thereof, each of said annular recesses providing two oppositely-facing valve seats, an annular shoulder in said valve body coaxial with said annular recesses, said annular shoulder being spaced from said two spaced-apart recesses and providing an additional valve seat, a valve stem in said body adapted for longitudinal movement, three valve discs on said valve stem adapted to simultaneously seat respectively on said additional valve seat and on said valve seats facing in the same direction as said additional valve seat when the valve stem is in one position and two of said valve discs being adapted to simultaneously seat respectively on the remaining two of said valve seats when the valve stem is in another position, sealing means between the valve stem and the valve body located between the valve disc adapted to seat on said annular shoulder and the annular recesses nearest to said annular shoulder, said valve body having a plurality of ducts communicating with the exterior thereof, one of said ducts communicating with the space between the annular shoulder and the end of said body beyond said shoulder, another communicating with the space between said shoulder and said seal, another communicating with the space between said seal and the annular recesses nearest to said seal and with the space beyond the annular recess farthest from said seal and the end of said body adjacent said last-mentioned recess, another duct communicating with one of said annular recesses at a point between the valve seats thereof, another duct communicating with the other of said annular recesses at a point between the valve seats thereof, and another of said ducts communicating with the space between said recesses.

2,351,303. APPARATUS FOR HARVESTING ICE. Richard M. Storer, Denver, Colo., assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Feb. 16, 1937, Serial No. 125,997. 6 Claims. (Cl. 62—108.5.)



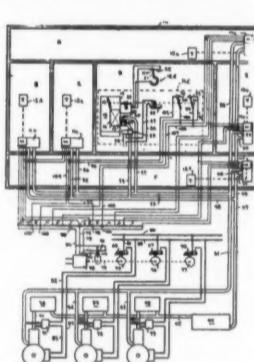
5. In combination, a tray having an inclined wall, a unitary grid structure removably disposed in said tray, said grid structure comprising a longitudinal member and a plurality of spaced apart substantially non-flexible members extending transversely thereto and cooperating therewith to form compartments on each side of said longitudinal member in which a liquid is frozen into individual ice blocks, said transverse members being mounted for movement relative to said longitudinal member, an element on the grid adapted to engage said transverse members and impart movement thereto in a direction toward the inclined tray wall to break the bond between the ice blocks and said tray and grid, and an operating lever pivotally mounted on the grid and having a connection with said element for moving same, said lever acting directly on the grid only.

2,351,313. THERMOSTATIC EXPANSION VALVE. August F. Anderson, Goshen, Ind., assignor to Penn Electric Switch Co., Goshen, Ind., a corporation of Iowa. Application Sept. 16, 1941, Serial No. 411,023. 4 Claims. (Cl. 137—153.)



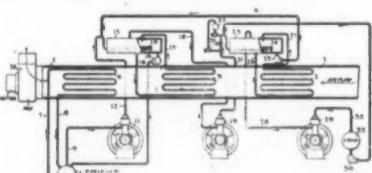
1. In a thermostatic expansion valve, a body member, a diaphragm therein, a diaphragm guide mounted in said valve body, a diaphragm follower guided thereby, a valve unit in said valve body comprising a body element having removable screw-threaded connection with said diaphragm guide and a plurality of openings therein, said valve unit including a valve pin slidable in one of said openings, a guide pin slidable in another of said openings, and a head connecting said pins together, said body element having a shouldered part, and a valve disc mounted therein and provided with a valve seat for coaction with said valve pin, the annular marginal edge of said body element being bent over the peripheral edge of said valve disc to retain the disc in position relative to said body element.

2,351,695. MULTIZONE AIR CONDITIONING SYSTEM. Alwin B. Newton, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application April 17, 1942, Serial No. 439,381. 10 Claims. (Cl. 62—6.)



2. In an air conditioning system for a plurality of spaces representing unequal loads on said system, in combination, evaporator means for each space, variable capacity compressor means for supplying liquid refrigerant to said evaporator means, a temperature responsive device in each of said spaces, electric circuit means, means operated by each temperature responsive device for changing a condition of said circuit means an amount dependent both upon the load represented by a space in which that particular temperature responsive device is located and in accordance with the amount the temperature in said space has deviated from the desired value and means responsive to the condition of said electric circuit means for rendering said compressor means operative at minimum capacity when the condition of said circuit indicates a sufficient demand to warrant such operation, and for increasing said capacity upon an increase in said demand.

2,351,700. REFRIGERATION. Velt C. Patterson, York, Pa., assignor to York Corp., York, Pa., a corporation of Delaware. Application Sept. 16, 1943, Serial No. 502,657. 9 Claims. (Cl. 62—115.)



1. A refrigerating circuit containing volatile liquid refrigerant and comprising in combination a low pressure receiver; a receiver suction trap; a low stage compressor arranged to withdraw vaporous refrigerant from said receiver and deliver it at higher pressure into contact with liquid in said trap; liquefying means including a higher stage compressor arranged to withdraw vaporous refrigerant

(Continued on Page 27, Column 3)

## WAR INDUSTRIES NEED REFRIGERATION

The use of refrigeration in industry has been greatly accelerated by the war. In peacetime this expansion may logically be expected to continue. Write for literature.

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Machine Co.,  
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Grips the grooves...  
stops slip—flexible  
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WEAR  
Endless cord construction  
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Smooth running and  
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Household and Commercial Refrigerator Cabinets  
Now Making VITAL War Products for Army and Navy

MIDWEST MFG. COMPANY

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COMPANY

## Are You Getting Your Share of the Milk-Cooling Business?

# WILSON

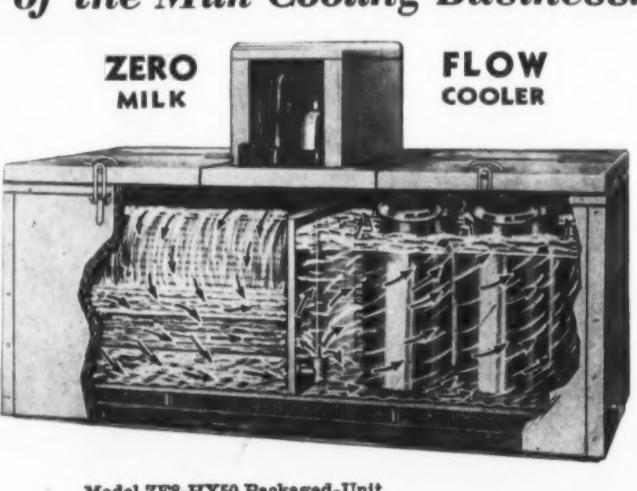
SYSTEMS OF MILK COOLING  
A TYPE FOR EVERY REQUIREMENT  
1. ZEROFLOW MILK COOLER

The Wilson ZERO-FLOW Milk Cooler, in sizes to cool from 4 cans to 20 cans of milk daily, has set a high standard of milk-cooling speed, with economy and dependability throughout a long life. The 1944 ZERO-FLOW, engineered particularly for the use of refrigerating plates, continues the Wilson tradition of high performance in:

- RAPID AND UNIFORM COOLING
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- LIFE-TESTED CONSTRUCTION

If there is no Wilson Dealer near you... if you have an adequate sales-and-service organization... you can get your share of this tremendous business. Write NOW!

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Model ZF8-HX50 Packaged-Unit

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RATES for all other classifications \$5.00 per insertion. Limit 50 words.  
Advertisements set in usual classified style. Box addresses count as five words, other addresses by actual word count.  
PAYMENT in advance is required for advertising in this column.

## EQUIPMENT FOR SALE

FOR SALE: Milk Coolers, Bottle Coolers, converted Freezers, 1,000 complete High-Sides Frigidaire, Kelvinator  $\frac{1}{4}$  H.P. to 2 H.P. Motors up to 5 H.P. send for list and price. EDISON COOLING CORPORATION, 310 E. 149th St., New York, N.Y.

BEER COOLERS direct draw dispensing cabinets for 2 half barrels. Brand new, complete with faucets and fittings. \$25.00 F.O.B. Philadelphia, Pa. Milk Coolers 4 and 6 can capacity. Complete self-contained with General Electric condensing units. Call Rittenhouse 6359 or write, JORDAN REFRIGERATOR COMPANY, 235-37 N. Broad St., Philadelphia 7, Pa.

FOOD FREEZERS, rebuilt and guaranteed. Immediate shipment. Write for illustrated circular and price list. EQUIPMENT SALES CO., 3915-23 Market St., Philadelphia 4, Pa.

AIR CONDITIONING self-contained units, 3 and 5 tons, also 3 and 5 H.P. water cooled condensing units, brand new in original crates, standard make guaranteed by the manufacturer. Delivery at once. EVERLAST, 444 Fourth Avenue, New York City.

USED BRUNSWICK Kroeschell.  $5\frac{1}{2}$  x  $4\frac{1}{2}$  Ammonia Compressor Model C252 in good condition. CONSOLIDATED CONDITIONING CORPORATION, 456 So. 10th Avenue, M. Vernon, New York.

MILK COOLERS with General Electric Condensing Units. The last of this season's stock. Four can models only—double or single row equipped with  $\frac{1}{4}$  H.P. G-E. All new guaranteed equipment. Immediate delivery. Prices right. Write or wire today. RAMSEY-BENNETT COMPANY, 727 Bolivar Rd., Cleveland 15, Ohio.

DRY BOTTLE COOLERS. ELECTRIC. Equipped with vending machine, blower coil, and self-contained  $\frac{1}{4}$  H.P. Universal Cooler Corporation unit ready to plug in. Brand new. Streamlined. No priority required. Price \$132.50 net. GENERAL REFRIGERATOR COMPANY, 5400 Eadom St., Philadelphia, Pa.

ICE REFRIGERATED BOTTLE COOLERS. Three-case capacity. Streamlined. All steel, heavily insulated. Casters. Also useful for cooling fish and other products or storing cracked ice in hotels or taverns. Suitable for homes. \$19.00 net each, f.o.b. Philadelphia. Brand new. No priority required. GENERAL REFRIGERATOR COMPANY, 880 North Broad Street, Philadelphia, Pa.

REFRIGERATION PRODUCTS  
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1944  
Refrigeration Supply  
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Sent on request  
REFRIGERATION EQUIPMENT CO.  
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Equipment with a  
National reputation for  
Quality and Performance.  
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RECORD CO. 1944  
WATER-REFRIG.  
U.S. PAT. 2,270,350  
NEW ZEALAND PAT. 672,350  
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WATER COOLERS Ice Refrigerated. Model S, 65 pounds ice capacity \$49.00. Model L 150 pounds \$69.00 net dealer cost f.o.b. Detroit. Price includes coil and glass filler faucet. Construction Stainless steel top, galvanized metal base, welded metal legs. Samples shipped 20% deposit with order, balance COD. SPECIALTIES DISTRIBUTING CO., 525 East Jefferson, Detroit.

## EQUIPMENT WANTED

USED EQUIPMENT WANTED: Air conditioning and refrigeration systems and machinery including self-contained units, coils, high-sides, shell and tube coolers and controls. Highest cash for large sizes. We urgently need two 15 HP motors and two compressors without condensers. E. M. FAIRBANKS CO., 475 Fifth Ave., New York 17, N.Y.

AIR CONDITIONING equipment of all sizes including Evaporative Condensers where possible. Highest prices. J. E. HEYMAN, 251 W. 98th St., New York 25, New York.

WILL PAY \$300.00 for used 4 or 6 Row Refrigerant Cooling Coil (approximately 10 square foot face area) first class condition use with Methyl, dimensions unimportant. \$500.00 for used Fan-Coil Filter Unit same capacity coil. Wire details. REUBEN O. EMERY, 432 3rd National Bank Bldg., Nashville, Tennessee.

## POSITIONS AVAILABLE

BEST OPPORTUNITY in all America both during and after the war. San Diego, Calif. Offers you everything worth living for. We need good service men. Will pay top wages, time and a half and double time for over 44 hours plus liberal commissions. WRIGHT REFRIGERATION SERVICE, 1337 India St., San Diego 1, Calif.

SALES ENGINEERS and draftsmen for industrial refrigeration contracting and manufacturing business. Great variety of work. Excellent postwar opportunities in healthful climate with well established company. GAY ENGINEERING CO., 2730 East Eleventh St., Los Angeles 23, Calif.

RESPONSIBLE MID-SOUTH manufacturer making complete line for Store Installations wants manufacturing executive familiar with Commercial refrigeration who can supervise design and operation of wood working plant manufacturing wall shelving and a complete line of refrigerated Equipment. Operation offers an unusual postwar opportunity. Box 1579, Air Conditioning & Refrigeration News.

EXPORT REPRESENTATIVES and service engineers. Large domestic and commercial refrigeration manufacturer doing world wide business is interested in interviewing men with good background for both retail and wholesale selling, also servicemen for employment abroad in postwar. Write giving full details, experience, and references. Box 1584, Air Conditioning & Refrigeration News.

REFRIGERATION SERVICEMAN for permanent position in Florida. Good salary and car allowance. Write at once, giving all details of experience and references. U. S. E. S. referral card necessary. Good opportunity for advancement. Box 1574, Air Conditioning & Refrigeration News.

POSITION OPEN for a live Cost Accountant in a lively machinery manufacturing concern with 1,000 employees.

Involves several products under simultaneous production; gray iron foundry operation; only experienced persons need apply. Good permanent connection for the right man. Box 1571, Air Conditioning & Refrigeration News.

APPLICATION ENGINEERS. Design Engineers. Prominent manufacturer of commercial refrigeration coils and equipment has opening for experienced, high calibre engineers to design new equipment, re-design prewar lines, and application work. Excellent salary and opportunities for advancement with large, growing, active organization. Box 1585, Air Conditioning & Refrigeration News.

EXPERIENCED commercial refrigeration application engineer interested in permanent postwar position. Opportunity to learn established low temperature field. State experience and qualifications in first letter. Box 1587 Air Conditioning & Refrigeration News.

REFRIGERATION ENGINEER for low temperature development laboratory by well-known mid-west manufacturer of low temperature equipment. Splendid postwar opportunity. State qualifications in detail. Box 1588 Air Conditioning & Refrigeration News.

EXPERIENCED shop foreman, by old established New York City concern, to rebuild ice-cream cabinets. Write past experience, salary wanted. Box 1586 Air Conditioning & Refrigeration News.

FACTORY SUPERINTENDENT. Good permanent opening for the right man. Give full qualifications first letter. Specialized Refrigeration Product. Box 1591, Air Conditioning & Refrigeration News.

SALES ENGINEER is needed by Central States parts jobber; good salary and commission. This is a permanent position with postwar future. Must have complete knowledge of domestic and commercial refrigeration. Give complete information in your application. Box 1592, Air Conditioning & Refrigeration News.

BUSINESS OPPORTUNITIES

LONG ESTABLISHED refrigeration business in Los Angeles. Representing national manufacturer as distributor. \$25,000.00 required. Box 1593, Air Conditioning & Refrigeration News.

## FRANCHISES WANTED

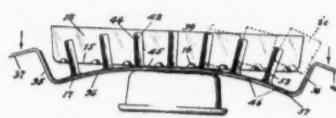
HAWAII. Organization headed by aggressive staff of trained appliance sales experts. Adequate Capital. Desires contacts with responsible manufacturers. Electrical appliances and allied lines. ELECTRICAL DISTRIBUTORS, LTD., P. O. Box 228, Honolulu 10, Hawaii.

## Patents (Cont.)

(Continued from Page 26, Column 4)

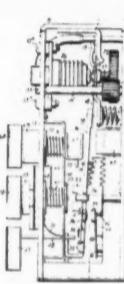
from said trap, liquefy it and return it to said trap; two evaporators; means serving to supply liquid refrigerant from said receiver to one evaporator and cause it to evaporate therein under receiver pressure; means serving to supply liquid refrigerant from said trap to the other evaporator, and cause it to evaporate therein under trap pressure; and means serving to deliver excess liquid refrigerant from said trap to said receiver.

2,351,742. FLEXIBLE GRID ICE TRAY. Michael K. Buchanan, Norfolk, Va. Application Nov. 13, 1939, Serial No. 304,240. 15 Claims. (Cl. 62-108.5.)



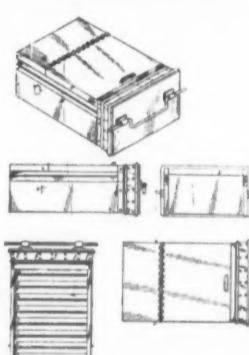
1. A grid for dividing a substantially rigid metal pan member into a plurality of ice containing cells, said grid being formed of flexible sheet metal and embodying a flexible bottom wall member formed of a double thickness of said sheet metal and a plurality of transverse wall members extending vertically from the bottom wall member and being formed of a double thickness of said sheet metal and means cooperating with the ice in said cells for preventing upward flexing of said grid when force is applied to an end thereof in an upward direction, said grid being flexible in other directions.

2,351,968. REFRIGERATOR CONTROL DEVICE. Frederick W. Hottenroth, Jr., Schenectady, N.Y., assignor to General Electric Co., a corporation of New York. Application Sept. 5, 1942, Serial No. 457,413. 17 Claims. (Cl. 200-83.)

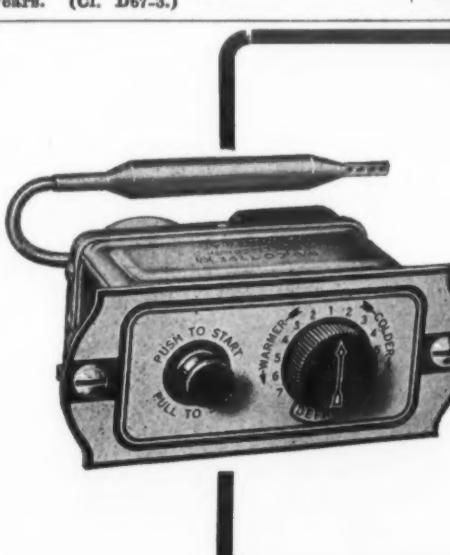


1. In a refrigerator control apparatus for controlling the temperature of a space to be cooled, a switch member movable between circuit-opening and circuit-closing positions to control said temperature, responsive to said temperature for effecting cyclic operation of said switch member between said positions normally to maintain said temperature within a predetermined range, a pair of permanent magnets operatively associated with said switch member, a first magnetizable member normally spaced from one of said magnets and movable into attractive relation therewith releasably to bias said switch member to a circuit-opening position thereby temporarily to maintain said space at a temperature above said predetermined range, and a second magnetizable member normally spaced from the other of said magnets and movable into attractive relation therewith releasably to bias said switch member to a circuit-closing position thereby temporarily to maintain said space at a temperature below said predetermined range.

138,060. DESIGN FOR A DRAWER FOR A REFRIGERATED LOCKER



SYSTEM. William McKinley Baird, Chicago, Ill. Application March 27, 1944, Serial No. 113,045. Term of patent 14 years. (Cl. D67-3.)



## Philco Sales Jump 70%

PHILADELPHIA — Philco Corp.'s sales for 1943 increased 70% over 1942, according to the company's annual report released recently. After voluntary price reductions totaling \$18,803,929 on Army and Navy work, Philco's sales amounted to \$116,395,929. Net income for 1943, after negotiation and after all federal and state income and excess profits taxes, was \$3,573,569, or \$2.60 per share.

**GENUINE  
MAYFLOWER**  
CONDENSING UNITS AND PARTS  
Jobber Inquiries Invited

A complete line backed by nearly a quarter century of user confidence. Write for prices.

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MASTERCRAFT  
ADJUSTABLE PAD AND  
CARRYING HARNESS

Endorsed by thousands!

Used and endorsed by thousands of refrigerator dealers in the United States and Canada.

Pad is adjustable to all makes and sizes of refrigerator cabinets; the pad protects finish cabinet from scratches and marks during moving, easily and quickly put on or off; sturdy, lasting construction; easily pays for itself in a short time. Price \$11.75 each.

Attractive lettering of your name on pad at \$2.00 each extra.

Harness is a separate unit from the pad, is adjustable, and provides a simple and convenient arrangement for carrying your refrigerator more safely and easily. Price \$8.50 each.

Write for complete folder and prices for pads for refrigerators, washers, ironers, ranges, radios; also furniture pads and protective covers. All prices subject to change without notice.

BEARSE MANUFACTURING CO.  
INCORPORATED 1921  
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**ANSUL ICE-X TRADE MARK**  
IS MAGIC  
ELIMINATES MOISTURE TROUBLES...DESTROYS ICE AT EXPANSION VALVE!

FOR METHYL CHLORIDE • METHYLENE CHLORIDE AND FREON REFRIGERANT  
• Literally searches out and gets rid of moisture trouble anywhere in system...destroys ice at expansion valve so no freeze-up is possible...without harm to refrigerant, oil or any of the parts of the system. ICE-X is the original, fully patented liquid dehydrant.

ORDER FROM YOUR JOBBER OR...  
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JOBBERS: WRITE FOR SPECIAL PROPOSITION!



★ This is SAM D. VANDER WEG, former Sales Promotion Manager of the Tyler Fixture Corporation, now serving as Personnel Director and Special Production Engineer. Sam is known to hundreds of Tyler dealers and although doing a fine job in the war takes most of his time, he has laid out some important plans to put Tyler out in front in the huge commercial refrigeration market of tomorrow.

**TYLER REFRIGERATORS**

**STANDARD PRIME SURFACE Cold Plates FOR MAXIMUM EFFICIENT REFRIGERATION**

★ For Locker Plants, Sharp Freezing, Ice Cream Cabinets, Hardening Rooms, Soda Fountains, Storage Rooms, Milk Coolers, Liquid Cooling, Food Counters and other similar uses. Write us today for complete information and catalog. Standard Facilities are contributing to the production of materials for our National Defense.

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WORK WITH YOUR  
RANCO JOBBER

Ask your Ranco Jobber about the exact replacement Rancostats, such as the one illustrated here, about the commercial and domestic controls.

The production of Ranco Controls is necessarily limited. If the exact type you desire is not available, your jobber will recommend one that is easily adaptable. Work with him!

Ranco Inc. COLUMBUS, OHIO

**Takes Factory Post**

**W. A. SIEGFRIED**  
Has joined Superior Valve & Fittings Co. as assistant to the vice president.

**Houdaille-Hershey Buys Honan-Crane Corp.**

LEBANON, Ind. — Honan-Crane Corp., manufacturer of oil purification equipment here, has been purchased by Houdaille-Hershey Corp. and will be operated as a subsidiary.

No change in policy or management is contemplated. Paul R. Honan, Claude R. Crooks, V. S. Crane, and A. S. Harlan will continue in charge.

**Deweese Will Represent Electromaster In South**

ATLANTA—H. K. "Pete" Deweese has been appointed southeastern sales agent for Electromaster, Inc., of Detroit, covering the territory of Georgia, Alabama, North and South Carolina, Florida, and Tennessee.

For the past 20 years Mr. Deweese had been with Edison General Electric Appliance Co., spending much of the time as district manager in various southern cities.

**PURO** ELECTRIC WATER COOLERS

DRINKING WATER SPECIALISTS

For Over 40 Years

**PURO FILTER CORP.** OF AMERICA

440 Lafayette St., New York 3, N. Y.

Branches in Principal Cities

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**NIAGARA** DUO-PASS AERO-CONDENSER

- Lowers condensing temperatures, saves power and water, increases the capacity of present equipment.
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NIAGARA BLOWER COMPANY  
25 Years of Service in Air Engineering  
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**AIRO Service**

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Refrigeration Parts, Equipment, and Supplies

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**Kress To Head Philco Sales In Mid-West**

PHILADELPHIA — William E. Kress has been appointed sales manager of the Middle West for Philco Corp., with headquarters in Chicago, it was announced by Thomas A. Kennally, vice president in charge of sales. Mr. Kress succeeds John M. Otter who was named sales manager for the Home Radio Division.

A graduate of the University of Illinois in the class of 1924, Mr. Kress joined Philco in 1934 after eight years of experience in the radio industry. He spent two years in Chicago and then went to Oklahoma in 1938 and St. Louis in 1940 as district representative. For the past two years he has been Southwestern Division manager for Philco with headquarters in Kansas City.

**Watch Firm Expanding Small Parts Mfg.**

DAYTON, Ky.—Specializing in the production of small, precision metal parts, a new Small Parts Division has been established by the Wadsworth Watch Case Co. as a postwar move.

At present some 45 manufacturers in the refrigeration, aircraft, automotive, bearing, electronics, instruments, machine tool, small arms, and other industries are being supplied small parts under contract by the company.

Wadsworth can perform a few operations on parts, or handle the complete manufacturing job, including the design and building of dies, jigs, fixtures, tools, and gauges, as well as assembly and final finishing, the company announces.

**Seabees' Icemakers Overcome Problem of Navy Photographers**

WASHINGTON, D. C.—When Navy photographers in the South Pacific area discovered the Seabees' York "FlakIce" machines, they solved the problem of keeping developer solution cool enough, despite high climatic temperatures, to permit proper development of negatives.

Working in improvised darkrooms on isolated islands, the photographers were at first unsuccessful in obtaining the sharp detailed pictures necessary for record photography. High temperatures caused the carbonates in the developer to expand the pores in the gelatin beyond the

ability of the restrainer to control them.

To keep the developer at from 65 to 70° F., photographers borrowed enough flake ice from the Seabees to keep a tin of developer solution placed within a larger tin, packed in ice as long as required.

Chief use of the Seabees' flake ice is for food handling and medicinal purposes, including direct applications to reduce pain and swellings and in refrigeration anesthesia.

**Honolulu Firm Takes Puffer-Hubbard Line**

HONOLULU, T. H.—Electrical Distributors, Ltd., recently formed appliance distributorship here, has taken on the Puffer-Hubbard Mfg. Co.'s line.

**THE TAKE OFF . . .**

A mission to be accomplished. Its success depends upon the pilot and his equipment. Pilots of business in the post-war era must also depend upon equipment . . . much of it war-born . . . some of it still veiled in military secrecy. Bush Intercoolers are providing planes of the United Nations with the superior critical altitude vital to victory. Bush experience in heat transfer, with its hundreds of commercial and industrial applications, will provide many a post-war business pilot with the equipment necessary to success. Our engineering staff is at your command. BUY WAR BONDS.



**Bush Intercooler**

THE BUSH MANUFACTURING CO. • HARTFORD, CONNECTICUT